

## Water and Wastewater Rate Analysis

Prepared For:

**Town of Uxbridge, Massachusetts**

September 2018

**Section 1 Introduction**

1.1	Background .....	1-1
1.2	Project Goals .....	1-2
1.3	Approach and Methodology.....	1-2
1.4	Current Rate Structure.....	1-3
1.5	Capital Improvement Fee (CIF) .....	1-4
1.5.1	Water EDU's .....	1-5
1.5.2	Sewer EDU's.....	1-6

**Section 2 Water Enterprise**

2.1	Usage Evaluation .....	2-1
2.2	Expenses .....	2-2
2.2.1	Operating Expenses.....	2-2
2.2.2	Capital Expenses.....	2-3
2.3	Debt.....	2-5
2.4	Revenue .....	2-5
2.5	Proposed Water Rate Structure .....	2-7
2.6	Water Rate Customer Impacts .....	2-9

**Section 3 Sewer Enterprise**

3.1	Usage Evaluation .....	3-1
3.2	Expenses .....	3-1
3.2.1	Operating Expenses.....	3-1
3.2.2	Capital Expenses.....	3-2
3.3	Debt.....	3-2
3.4	Revenue .....	3-3
3.5	Proposed Sewer Rate Structure.....	3-5
3.6	Sewer Rate Customer Impacts .....	3-6
3.6.1	Initial transition to new rate structure.....	3-6
3.6.2	Customer impacts under proposed rate structure .....	3-7

**Section 4 Conclusions and Recommendations**

# Section 1

## Introduction

This report is intended to both explain and document the rate making process used by Tighe & Bond under its agreement with the Town of Uxbridge. The core of this evaluation is an electronic rate model developed by Tighe & Bond and custom tailored for this evaluation. Key elements of the rate model are presented in this report. The primary elements of our rate evaluation are shown as figures that represent snapshots of specific parts of the rate model. Other data, generally ancillary in nature, is presented in tabular fashion.

Appendix A contains hard copy of the relevant elements of the water rate model while Appendix B contains the same for the sewer rate model. As you read this report we suggest that you keep the appropriate appendix nearby and refer to it as you read.

The purpose of the rate model is to support transparent, data driven decision making. We use a ten-year planning window in the model for the following reasons:

1. It allows a utility to understand and prepare for financial impacts associated with large scale capital projects. An example is a wastewater treatment discharge permit renewal which could require upgrades costing tens of millions of dollars but won't occur for 6-8 years. By using a ten-year window, a utility can plan for both current and future actions to reduce the likelihood of sudden rate increases.
2. It establishes continuity; most Towns set rates one year at a time, however by showing future projected rate increases, it sets the expectation that the governing body can expect a similar rate discussion in future years.

While we believe that ten-years is appropriate for forecasting and planning there are several important considerations:

1. **Projections and assumptions.** There are numerous assumptions involved in the model projections. Like any projections, they become inherently less accurate the farther away from present that they occur.
2. **Recommended rates:** This evaluation was prepared under the assumption that the Town would continue to set rates on an annual basis, even though the model output includes projected rate recommendations for the complete ten-year period.
3. **Rate setting on a continuum.** We believe that the value of our extended rate model window is that it fosters future communications between the utility managers, Town staff and the Board of Selectmen. We strongly recommend that the model be updated every year based upon actual usage and financial data.

### 1.1 Background

The Town of Uxbridge owns, maintains and operates both a public water system and a public sewer system. The service areas for both utilities are contained within the political boundaries of the Town. Both utilities are managed as municipal enterprise funds under MGL c. 44, § 53F½. Enterprise funds are intended to provide financial separation between the utility and the General Fund. Enterprise funds can be set up as revenue neutral, revenue surplus (subsidy to General Fund) or revenue deficient (subsidy from the General

Fund). The most common form of operations is revenue neutral with administrative and employee benefit costs allocated to the enterprise.

Municipal water and sewer systems are not subject to rate review by the Public Utilities Commission, rather they are granted considerable latitude in establishing water and sewer rates according to Part I, Title VII, Chapter 40N of the General Laws of the Commonwealth of Massachusetts which is presented below.

*"It is hereby declared essential for the benefit of the people of each municipality which accepts this act, in order that there be an increase in their commerce, welfare and prosperity and an improvement in their living conditions, that the municipality establish or continue to maintain an economical and efficient water system and sewer works system; that accurate, appropriate, and self-sustaining fees, rates and charges for water and sewer service within the municipality be established and all consumers, public and private, taxpayer and tax exempt, pay their fair share of the costs of such services; that the water and sewer systems of the municipality to be operated in a modern, efficient and financially self-sustaining manner to further their sound financial, environmental and physical condition; that conservation of water sources be encouraged; that water supplies be protected and improved; and that the municipality be provided a means to improve its water and sewer systems and insure the continued availability of water and sewer services at sufficient rates; all to the public benefit and good, and to the extent and in the manner provided herein."*

The key phrase of the law is that all consumers pay their **fair share** of the cost of such services. Fairness and equity form the underpinnings of water and sewer rate making practice. This is rooted in the concept of cost causation where customers' bills reflect their portion of the costs of operating the systems. In Uxbridge, 97% of the users are residential which reduces concerns of inter-class inequities.

## 1.2 Project Goals

The primary goal of any rate evaluation is to recommend rates that will provide a sustainable source of revenue to fully fund the operations and maintenance of the utility and to fund infrastructure renewal or expansion. During initial discussions with the Town, we discussed the somewhat unconventional method currently used for distributing debt service costs to customers. We also learned that many non-residential customers felt that they were being overcharged under the existing system. Therefore, our scope was expanded to examine the existing rate structure and compare it to a conventional rate structure to determine the benefits and impacts of moving to a more conventional water and sewer rate structure.

## 1.3 Approach and Methodology

In general, our approach to water and sewer rate making is as follows:

- Review the last five years of usage, revenue and expense data to identify trends and develop projections.
- Calculate future rate revenue based upon projected water consumption / sewer usage
- Determine future costs of capital projects

- Develop electronic rate model which projects future revenues and expenses and determines the amount of reserves for each year
- Set rates based upon maintaining desired level of reserves
- Project revenues, expenses and rate increases for a ten-year period

## 1.4 Current Rate Structure

Uxbridge currently charges customers for water and sewer in accordance with the following rates.

**TABLE 1-1**

Existing Water Rates

Description	Rate
0-800 CF	\$19.75
801-3,000 CF	\$2.99 per 100 cubic ft
OVER 3,000 CF	\$4.35 per 100 cubic ft
IRRIGATION RATE	\$5.10 per 100 cubic ft
W1 WELLFIELD LAND ACQUISITION	\$6.21 per dwelling unit quarterly
W2 WATER TANK	\$21.33 per dwelling unit quarterly
W3 ROSENFELD WELL	\$14.19 per dwelling unit quarterly
W4 WATER MAINS	\$12.76 per dwelling unit quarterly

This type of structure is called an increasing block or tiered water rate. The concept is to encourage conservation by charging more for increased water use. Regardless of the number of tiers a utility uses, the goal is to separate usage into three components: responsible usage, discretionary usage and wasteful usage. Responsible usage is that required to sustain human life in the modern age, which is often determined by looking at residential water use in the winter. Discretionary water use includes moderate outdoor usage such as car washing and handheld watering, however depending upon the tier setting, some degree of indoor water use could be captured here. Wasteful water use is largely comprised of outdoor watering (irrigation); there is considerable discourse about this in the water industry as to the importance or value of lawn watering in particular. While it is beyond the scope of this study to determine whether irrigation is being performed efficiently, in general there is a need for additional consumer education on how to optimize outdoor water use.

Uxbridge's first tier include usage between 0 and 800 CF, which is in effect a base fee as all customers are charged this amount even with zero water use as long as the account is active. Accounts that are inactive at the customer's request (i.e. seasonal) are not charged the base fee. The irrigation tier is determined by a separate meter that is installed at the request of the customer. The rate for irrigation water is charged for all water use through the secondary meter, and the fact that the cost for that water is priced at 17% more than tier two indicates that the Town is both recovering the additional cost of the secondary meter (in terms of reading and billing) and pricing to encourage conservation.

The next set of charges are called Fixed Rate Capital Improvement Fees commonly referred to as CIF's. The CIFs are designed to recover cost associated with debt. Each project, or debt issue, has a separate CIF charge. CIFs are discussed in more detail in the next section.

Sewer users are charged for usage in a similar fashion. Unlike drinking water, which is delivered under pressure, sewage flows from the house by gravity and because it is impractical to measure sewer flow directly for small diameter pipes the water usage is used as a proxy for sewer usage.

**TABLE 1-2****EXISTING SEWER RATES**

<b>Description</b>	<b>Rate</b>
0-800 CF	\$43.80
OVER 800 CF	\$7.01 per 100 cubic ft
SEWER FLAT RATE	\$139.00 quarterly
S1 SEWER SLUDGE LANDFILL	\$5.67 per dwelling unit quarterly
S2 SEWER PLANT ROOFS	\$3.45 per dwelling unit quarterly
S3 SEWER LIME SILO	\$1.24per dwelling unit quarterly
S4 SEWER PLANT UPGRADE	\$27.50per dwelling unit quarterly
S5 SEWER PLANT UPGRADE	\$10.50 per dwelling unit quarterly
S6 SEWER CAPITAL	\$39.69 per dwelling unit quarterly

Sewer rates are applied the same as water rates, 0-800 CF charge is in effect a quarterly fee, the flat rate is used as an option for customers that have sewer service but not water service.

## 1.5 Capital Improvement Fee (CIF)

Uxbridge recovers its water and sewer enterprise debt service using CIF's, which is intended to represent the pro rata share of the debt service costs for each account. Equivalent Dwelling Units (EDU's) are used as the basis of measure for determining the CIF charge for each account. The EDU is a method of estimating water and sewer usage for non-residential users in terms of a "multiple of residential usage". For example, 2 EDU's implies twice the water or sewer usage of a typical residential user. EDU's are most often used when actual consumption data is not available or too burdensome to use, for example a public sewer system in a community with numerous independent water districts.

A CIF is calculated for each individual loan and itemized on customers' bills. The CIF charge is determined by dividing the total Principal and Interest payment for the year for the subject debt item divided by total number of EDU's in the system. This serves as a 'unit price'; each customer is then charged the unit price multiplied by their number of EDU's.

Based upon customer concerns over the equity of the CIF costs where larger non-residential users claim that they are paying a disproportional cost, one of the primary goals of this evaluation is to review the CIF methodology and compare per user costs under the current system to those based upon a conventional rate structure. Under a conventional rate structure, debt is combined with all other expenses and distributed across customers based upon a system of base fees and usage charges. While this is functionally equivalent to Uxbridge's existing rate structure; the primary difference is the method in which the costs are distributed.

### 1.5.1 Water EDU's

Water EDU's are determined based upon a hybrid system that uses a combination of meter size and housing units. Residential accounts are assigned a number of EDU's in accordance with the number of housing units served by that account. Non-Residential accounts are assigned a number of EDU's according to meter size. Meter size: 1" and smaller meters are assigned a value of 1 EDU, and each increasingly larger size is assigned an additional EDU for each ½" increase in diameter. **It is important to remember throughout this evaluation that EDU's are considered a substitute for water consumption/sewer usage.**

In a conventional water rate structure, users are charged a base fee per billing period, referred to as a meter fee. Under a conventional approach, each meter size is assigned a meter fee which is a multiple of the 5/8" meter fee (generally the smallest size). These ratios are based upon capacity and published by the American Water Works Association (AWWA). To compare the existing system against a conventional system, we computed for each size meter the equivalent number of typical residential services (5/8" meter, 1 EDU) under the existing EDU based system and compared that to the AWWA's recommended ratios. Table 1-3 shows the results of this comparison.

**TABLE 1-3**

AWWA Meter equivalents compared to EDU Ratio

Meter Size	AWWA Meter Equiv.	No. EDU's	EDU Ratio	EDU/AWWA
5/8 inch	1.0	1.0	1.0	100%
3/4 inch	1.5	1.0	1.0	67%
1 inch	2.5	1.0	1.0	40%
1-1/2 inch	5.0	2.0	2.0	40%
2 inch	8.0	3.0	3.0	38%
3 inch	15.0	5.0	5.0	33%
4 inch	25.0	7.0	7.0	28%
6 inch	50.0	11.0	11.0	22%

Table 1-3 shows the meter fee escalations for both the AWWA method and the effective ratio based upon the calculated number of EDU's for each meter size<sup>1</sup> divided by the EDU's for a 5/8" meter. The right most column shows the ratio of the derived EDU equivalent to the AWWA meter equivalent. For all meter sizes greater than 5/8" this ratio is less than one and diminishes with increasing meter size. This disparity is due to the calculation methods - the EDU formula is linear while the AWWA factor varies on the area of a circle (which is exponential).

This shows that under a conventional water rate structure, accounts with larger meters would pay a significantly larger share of fee revenue than under the existing rate structure.

<sup>1</sup> Note: the largest meter size in the Uxbridge water system is currently 3"

### 1.5.2 Sewer EDU's

Like the AWWA meter factors, EDU's are also determined as a multiple of a typical residential user based upon estimated usage. The usage estimates are based upon Massachusetts Title V which is the common name for 310 CMR 15.000, part of the State Environmental code. Title V governs the design, siting, construction and operations of subsurface sewage disposal systems (septic systems). Title V also includes guidelines for determination of design flows for both residential and non-residential uses. Thus, Title V has become a de facto source of guidance for determining sewage flow rates.

Title V uses 110 gallons per day per bedroom for residential sewer usage. Non-residential uses are also provided with guidelines for estimating flow based upon factors such as the number of seats in a restaurant. Uxbridge standardized on 330 gallons per day as the basis for 1 EDU, thus for every other type of use, the estimated flow is divided by 330 to obtain the number of EDU's.

Since Title V serves as the basis for assigning sewer EDU's, understanding its purpose and background is important. Title V is part of the *State Environmental Code*, it's **primary** goal is the protection of groundwater and other natural resources from septic system discharges. To this end, Title V is **intentionally conservative**; the design flows provided are considered to be maximum daily flows and considered by many to be overly conservative. The flow estimates contained in Title V have not been revised since its adoption in 1978. It is considered outdated by many because it does not reflect the dramatic effects that water conservation and changes in food industry practices have had on water usage since 1978.

To evaluate the equity of this method of debt cost distribution we compared the Title V predicted usage to actual usage for the range of EDU's in the system. Table 1-4 shows the results of this evaluation.

**TABLE 1-4**

Comparison of assumed sewer usage against actual by EDU

Number of EDU's	No. Accounts	EDU Usage Per Account (CF)	Actual Usage Per Account (CF)	Ratio of EDU to Actual	Normalized Ratio
1	1,911	3,931	1,452	2.7	1.0
2	239	7,941	2,351	3.4	1.2
3	54	11,912	3,546	3.4	1.2
4	20	15,882	4,642	3.4	1.3
5	8	19,853	5,816	3.4	1.3
6	11	23,824	6,204	3.8	1.4
7	2	27,794	4,565	6.1	2.2
8	3	31,765	5,989	5.3	2.0
11	1	43,676	6,118	7.1	2.6
13	1	51,618	12,644	4.1	1.5
30	1	119,118	18,252	6.5	2.4
56	1	222,353	37,825	5.9	2.2
61	1	242,206	38,907	6.2	2.3

Note that the first column of Table 1-4 reflects the number of EDU's for a group of accounts and the second column represents the number of accounts with that number of EDU's. The seemingly random numbers in the first column reflect the actual data. For example,

there are 3 accounts with 8 EDUs' but there are no accounts with 9, or 10 EDU's, then 1 account with 11 and so on. For purposes of discussion each row of the first column will be referred to as an EDU grouping.

The EDU usage in the third column was determined by multiplying the number of EDU's for each grouping by 330 gallons per day, then dividing by 7.48 to convert to cubic feet (CF). The actual usage per account was determined by averaging the total usage of all accounts in each grouping for the period April 2016 to March 2017 (four quarterly readings) and dividing by the number of accounts in that grouping. The ratio of EDU to Actual was determined by dividing the two per account usages. It is interesting to note that this ratio for the "one EDU" classification is 2.7, which reinforces the perceived overestimation of usage with Title V as a basis. The normalized ratio divides each EDU/Actual ratio by 2.7 to compare them relative to a residential account. The normalized ratio varies because the actual usage varies by account. The normalized ratio varies from 1.2 to 2.6 with an average of 1.8. This means that by using the EDU/Title V method of estimating usage, the average user with more than one EDU is paying 1.8 times the debt service cost of a residential user.

## Section 2

### Water Enterprise

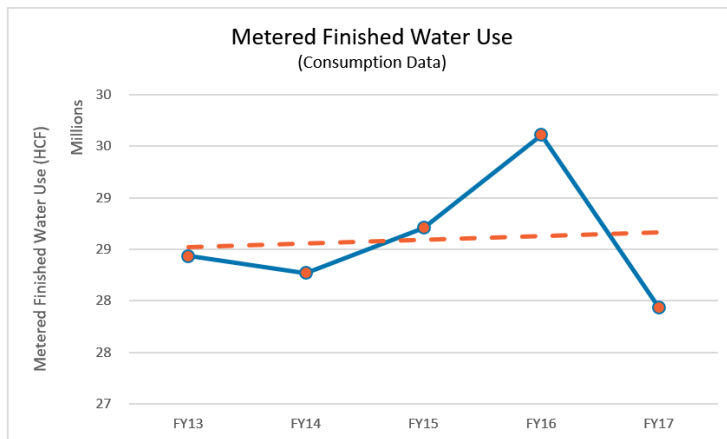
The Uxbridge water system consists of 66 miles of pipe, 7 wells and two storage tanks. The system serves 3,400 customer accounts or about 74% of Town. The primary function of a water utility is to provide safe drinking water to its customers as well as to provide fire protection. The utility bills its customers according to the rate structure described in Section 1.2. The revenue resulting from payment of water bills is referred to as rate revenue and is the primary source of revenue for the utility.

#### 2.1 Usage Evaluation

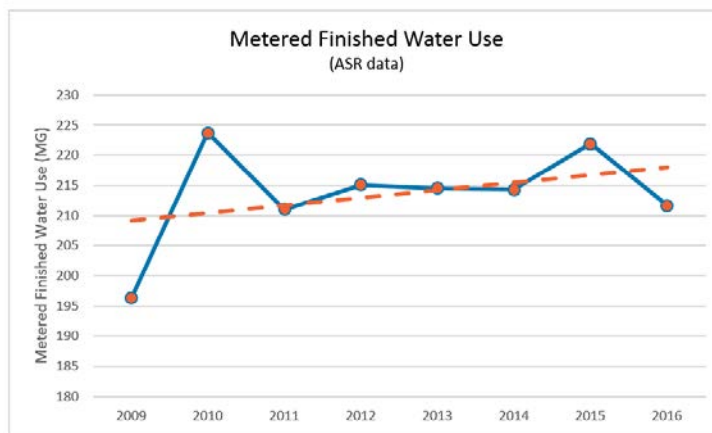
The amount of rate revenue is directly proportional to the amount of water consumption and as such it is important to review historical trends in water usage for the utility. For the purposes of this evaluation we used two data sources, detailed consumption records for the last five years (FY13-FY17), and data reported by the Water Division to the Department of Environmental Protection as part of the Town's Annual Statistical Report (ASR) which goes back to 2009. Trends from this data are reflected in the following figures:

**Figure 2-1**

Metered Finished Water Use (detailed consumption data)



**Figure 2-2**  
Metered Finished Water Use (ASR data)



While Figure 2-1 and Figure 2-2 appear to show an overall increase in water use it is necessary to eliminate outliers. A detailed precipitation analysis is beyond the scope of this evaluation, however we believe that 2009 was an outlier due to increased precipitation, while 2010 and 2016 were affected by drought. For purposes of projecting future consumption, we used FY2015 as a starting value with no change going forward. Usage is perhaps the most difficult parameter to project and we recommend that the model be updated at the end of each year to monitor changes. Also note that Figure 2-1 is on a fiscal year basis and Figure 2-2 is on a calendar year basis.

With regard to the number of customers, the total number of water accounts grew from 3,261 in FY13 to 3,339 in FY17 for a total of 78 accounts or about 0.5% growth (20 accounts) per year. We maintained the 0.5% projection going forward which equals a slightly more conservative growth of 17 accounts per year.

## 2.2 Expenses

Expenses are broken down into three primary categories: operating, capital and debt. See Appendix A for more information on the data referenced here.

### 2.2.1 Operating Expenses

Operating expenses categories include labor, electricity, maintenance, supplies, indirect and miscellaneous. Indirect expenses are a byproduct of the establishment of enterprise funds. If the concept of the enterprise fund is to segregate all costs and revenues associated with the enterprise fund from the general fund than it is generally understood that the enterprise fund should be assessed its pro-rata share of group insurance and benefit plan costs. Similarly, most communities also assign a portion of their centralized administrative costs associated with the enterprise fund. These costs are generally a fixed percentage of the salary and benefits for the Town Treasurer, Accountant and Town Manager. These costs are commonly referred to a 'indirects'.

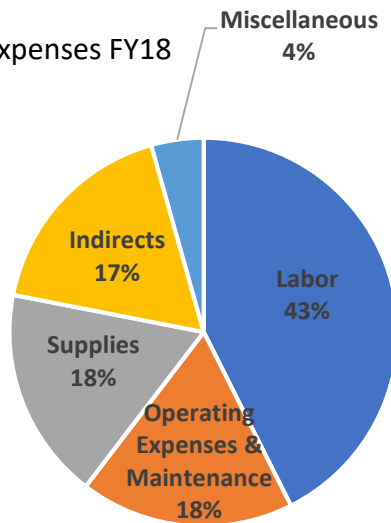
In Uxbridge, two other pooled cost shares are included in the indirects, which are more accurately termed as "Transfers to General Fund" - these are debt and fuel. Regarding debt, it is important to note that all municipal debt is **general obligation** debt, backed by the full credit and taxing power of the Town. Under the enterprise fund management

method, the cost associated with enterprise debt is apportioned to and recovered by user fees. While this discussion is largely academic, and debt can generally be considered as issued by the enterprise, it figures in when determining an appropriate debt load for enterprise funds.

For purposes of this evaluation we subtracted<sup>2</sup> the debt cost from the indirects, and instead track existing debt and new debt separately which helps identify the impacts of new projects. The following figure demonstrates the breakdown of water operating expenses.

**Figure 2-3**

Water Operating Expenses FY18



### 2.2.2 Capital Expenses

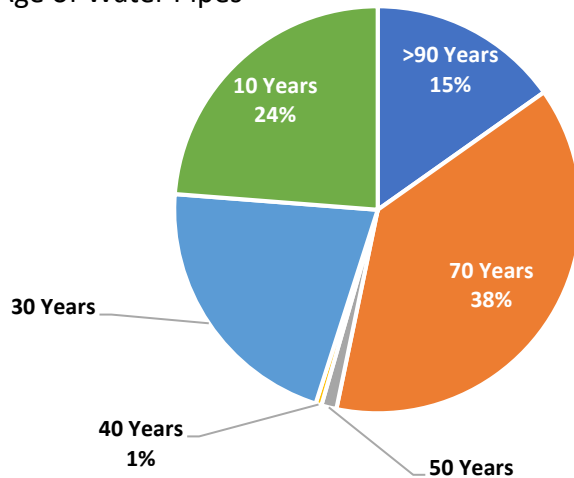
Capital expenses represent the cost to improve, maintain or expand the utilities infrastructure. Capital costs are the primary driver for rate increases. Capital projects can be funded through reserves (Rate Funded Capital) or debt (New Debt). The decision to fund depends upon several factors including total capital cost of the project, expected life of the assets to be purchased and size of the utility.

Figure 2-4 shows that like most New England water utilities, Uxbridge has an aging system, and the Capital Improvement Plan shown below in Table 2-1 reflects this.

<sup>2</sup> For FY18 the value from "2018\_OMB87\_Enterprise Funds\_Est 20170424" was used, for FY17 and FY16 the value from the A2's was used.

**Figure 2-4**

Age of Water Pipes

**TABLE 2-1**

Water System Capital Improvement Plan

Project	Funding source	Interest rate	Estimated Cost	Start year
Well Rehabilitation/New Source Development Study	Rate	NA	\$50,000	2019
West River Water Main Reconnection	Rate	NA	\$436,300	2019
Disposal/Septic System	Rate	NA	\$40,000	2019
Water Division Overall Master Plan	Rate	NA	\$50,000	2019
Phase I-2-Mendon Street (Route 16)	Debt	4.5%	\$1,347,000	2020
Phase I-3-High Street and connection to Douglas Street	Debt	4.5%	\$2,273,000	2020
Water Well Rehabilitation	Rate	NA	\$1,250,000	2020
Blackstone Well Field Roofs	Rate	NA	\$60,000	2020
Dump Truck	Debt	6.0%	\$150,000	2020
Backhoe	Debt	6.0%	\$170,000	2020
Phase II-5-Hartford Avenue East	Debt	4.5%	\$831,150	2021
Oak & Granite Street Water Main Replacement	Debt	4.5%	\$1,375,000	2022
East Street Water System Improvements	Debt	4.5%	\$3,200,000	2023

The table represents projects that are funded by the proposed rate structure. Note that the town-wide meter replacement project was funded by a transfer from retained earnings and thus is not shown in the table. Capital projects are shown as funded by 'Rate' which represents reserves<sup>3</sup> or new debt.

<sup>3</sup> Reserves represents the cumulative net cash flow for the enterprise. A portion of this is certified each year as certified retained earnings, however retained earnings are adjusted to reflect encumbrances and other items. The rate model uses a simple 'check book' approach to reserves, it is understood that this revenue is not readily available and must be appropriated each year by the enterprise at Town Meeting.

Approximately 80% of the projects are designed to improve the distribution system, while other projects include scheduled rehabilitation of the town's wells (spread over five years) and several vehicles. A conservative interest rate of 4.5% was used for watermain projects assuming a 20-year loan term, and vehicles are assumed to be 6% for a term of 5 years. The distribution system projects were based upon the 2014 System Evaluation Study by Tata & Howard. Other information came from the Water Division's Capital Planning requests.

## 2.3 Debt

The existing debt for the water enterprise consists of previous water main projects and land acquisition for watershed protection. Existing Debt represents about 30% of total expenses and peaks in FY18 at 40%, from which it drops to 30% or less for the remainder of the evaluation period. New debt represents an additional 11% to 20% - see the Debt Table in Appendix A for more detail.

## 2.4 Revenue

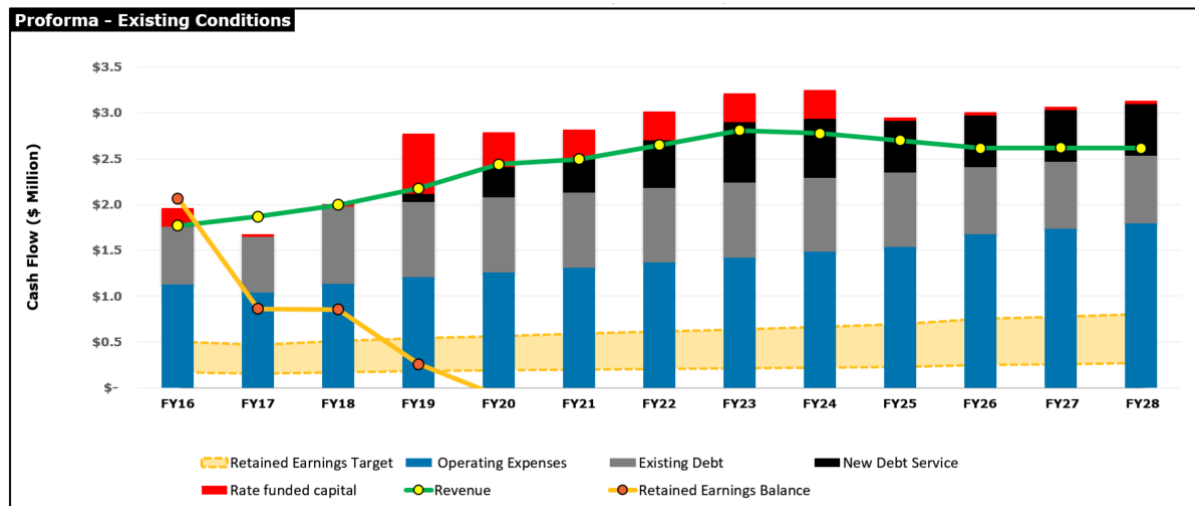
Water utility revenue consists of two components: rate revenue and non-rate revenue. Rate revenue represents the total amount billed to customers in a given year while non-rate revenue consists of fees, charges and investment income. About 90% of revenue is rate revenue.

Rate revenue is a direct function of the number of customers and the amount of water consumed, and is calculated based upon the projected usage discussed in section 2.1 Usage Evaluation. This calculated (Model) revenue is then compared to the commitments, which represent the total value of all water bills, to determine the model's accuracy. For FY16 and FY17 the calibration factor was 0.25% which is outstanding.

Not all users pay their bills on time, and the ratio of collected revenue to the committed or billed revenue is known as the collection ratio. For Uxbridge, this value averaged 91% over the last two years, which is about average. The revenue for unpaid bills is collected through the municipal lien process which results in deferred revenue from previous years being added to collections for the current year. Since our rate model is designed to evaluate varying rate scenarios, we determine a lien revenue factor based upon the current year's model revenue. To do this we calculate the percentage of each year's collections that is based upon liens. For Uxbridge the factor is 13.7%, in other words, each year the water and sewer divisions collect payments from liens that equal 13.7% of the current year's rate receipts. Figure 2-5 shows the proforma for the water enterprise under the current rate structure.

**FIGURE 2-5**

Water System Proforma – Existing Rate Structure



The columns represent the various expense categories, while the green line represents total revenue. The orange line represents reserves, or the fund balance. The fund balance is the primary variable that is used to set rates. The goal is to keep the reserves within the yellow band at the bottom of the chart<sup>4</sup>. The reserves will often exceed the top of the target band in anticipation for future expenditures but should not decrease beyond the bottom of the band. The lower reserve goal is 15% of operating expenses, this represents about two months of operating expenses. The revenue shown in Figure 2-1 includes CIF payments which are projected forward as 110% of the total debt service (existing and new debt).

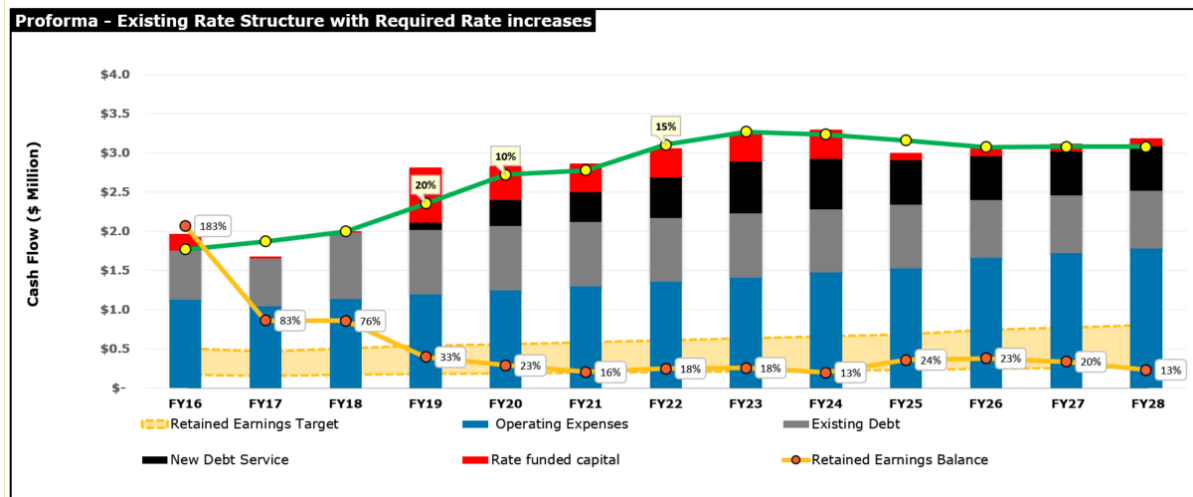
In FY17 there is a large drop in reserves which represents a \$1.4M transfer to fund water meter replacements. Note that this project does not appear in Table 2-1 since the funding for the project was set aside before the analysis period. Starting in FY18 the revenue becomes less than the total expenses. While common sense dictates that revenue should always be greater than expenses it is acceptable if there are sufficient reserves to fund the deficit. However, as we can see above the reserves are not sufficient and the water enterprise must raise revenue in FY19 regardless of the rate structure chosen.

The scope of this evaluation is not only to determine future rate increases, but to consider adopting a new rate structure. To provide an effective comparison, we also developed proposed rate increases under the existing rate structure. These rate increases are shown in Figure 2-6.

<sup>4</sup> There are numerous methods for determining the appropriate level of retained earnings. For purposes of this evaluation, the reserve range was set between 15% of operating costs (industry standard) and 50% of operating costs. The reserves should not dip below the 20% at any time, however the upper limit is less rigid, and reserves may exceed this from time to time especially in anticipation of a large upcoming expense.

**FIGURE 2-6**

Water System Proforma – Existing Rate Structure with required rate increases

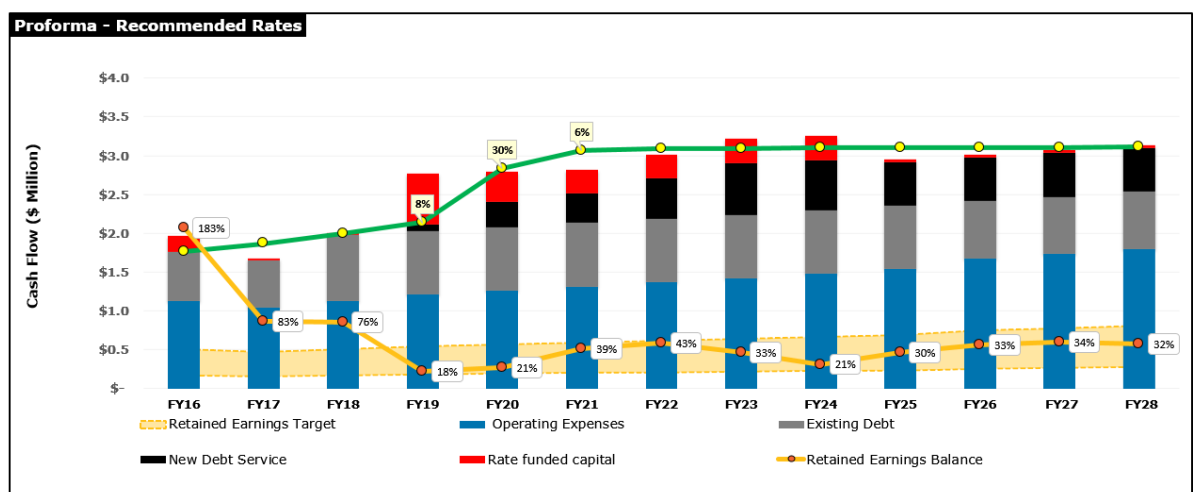


## 2.5 Proposed Water Rate Structure

As discussed in Section 1, one of the primary goals of this evaluation was to develop a more equitable rate structure, at the same time addressing the needs for additional revenue. The proposed rate structure eliminates the CIF and replaces it with quarterly meter fees that increase by meter size in accordance with AWWA recommendations as shown in Table 1-3. Under the existing rate structure 800 cubic feet of water is included with the Tier 1 fee, this effectively makes it a fixed charge, in the proposed rate structure, this 800 cubic feet is charged at the Tier 1 rate shown. Figure 2-7 shows the proforma using the recommended rate structure.

**FIGURE 2-7**

Water system proforma with proposed rate structure and required rate increases



The proposed rates are designed to maintain a reserve balance above 15% of operating expenses. Uxbridge's case is complicated by the fact that the rates and the rate structure

are changing simultaneously. Figure 2-8 shows an excerpt from the model dashboard (the complete dashboard can be found in Appendix A).

**FIGURE 2-8**

Water system proforma with proposed rate structure and required rate increases

Revenue	Rate Increase	FY16	FY17	FY18	FY19	FY20	FY21
					100%	30%	6%
Rate Revenue		\$ 852,339	\$ 801,599	\$ 983,930	\$ 1,980,229	\$ 2,684,503	\$ 2,915,586
Non-Rate Revenue		\$ 223,025	\$ 374,690	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500
Capital Improvement (CIF)		\$ 693,478	\$ 692,431	\$ 846,241			
Total Revenue		\$ 1,768,842	\$ 1,868,721	\$ 1,998,671	\$ 2,148,729	\$ 2,853,003	\$ 3,084,086

The proposed rate structure does away with the CIF and recovers the debt cost proportionally through meter fees. This can be seen above - note that in FY19 the rate revenue number increases substantially but the CIF funding stops. It is very important to note that the 100% rate increase while mathematically correct, does not reflect the true rate increase because of the change in rate structure. The effective rate increase is 8% as shown in Figure 2-7. The reason for this is that the CIF's are no longer assessed in FY19 and the difference is now made up by rates. The 10% effective rate increase is determined by computing the percent change between the rate revenue + CIFs for FY18 and the rate revenue for FY19. The proposed water rates are shown in Table 2-2.

**TABLE 2-2**

Proposed Water Rates and Rate Structure

Description	Type	FY18	FY19	FY20
5/8"	Quarterly Fee	\$0.00	\$25.00	\$32.50
3/4"	Quarterly Fee	\$0.00	\$37.50	\$48.75
1"	Quarterly Fee	\$0.00	\$62.50	\$81.25
1.5"	Quarterly Fee	\$0.00	\$125.00	\$162.50
2"	Quarterly Fee	\$0.00	\$200.00	\$260.00
3"	Quarterly Fee	\$0.00	\$375.00	\$487.50
4"	Quarterly Fee	\$0.00	\$625.00	\$812.50
6"	Quarterly Fee	\$0.00	\$1,250.00	\$1,625.00
Tier 1	Usage <sup>5</sup>	\$19.75	\$2.86	\$3.72
Tier 2	Usage	\$2.99	\$5.68	\$7.39
Tier 3	Usage	\$4.35	\$8.27	\$10.74
Irrigation	Usage	\$5.10	\$9.69	\$12.60

<sup>5</sup> The fee for FY18 is effectively a quarterly fee, in FY19 it becomes a true usage fee

The existing tiers have not been changed and are 0-800 CF for Tier 1, 801-3,000 CF for Tier 2 and 3001 and up for Tier 1.

FY18 represent the current rate structure while FY19 and FY20 show the proposed rates. Looking at rates alone it is difficult to understand the actual impacts to users, in the following section we will discuss this.

## 2.6 Water Rate Customer Impacts

Rate impacts are an important element of any rate study. Normally the focus is on the 'Typical Residential User' and while that is still important in Uxbridge, we also examined the impact across the user base due to the reallocation of debt expenses.

Table 2-3 shows the estimated rate impacts for various numbers of EDU's. The source data for this table was the detailed (account level) consumption data provided by the Town and used to determine the usage trends discussed in Section 2.1. This data was cross referenced to the number of EDU's assigned to each account using Town provided Data. The average consumption represents the average of the last four meter reading events in the consumption data and represents the period from April 2016 to March 2017. Number of accounts indicates how many accounts have been assigned the number of EDU's in the first column. Average usage represents the sum of the individual average usages described above divided by the number of accounts for each EDU category. Annual costs are calculated based upon existing rate / CIF structure for F18 and the new proposed rates and rate structure for FY19.

**TABLE 2-3**

Average water rate impacts across all users based upon number of EDU's

No. EDUs	No. Accounts	Average Usage	Annual Cost		
			2018	2019	Delta
1	2,909	16.12	\$413.52	\$416.17	\$2.65
2	277	23.49	\$720.73	\$599.45	\$(121.27)
3	75	44.22	\$1,279.45	\$1,410.78	\$131.32
4	27	49.91	\$1,584.02	\$1,456.98	\$(127.04)
5	14	124.25	\$3,078.37	\$4,406.66	\$1,328.29
6	12	52.10	\$2,041.39	\$1,508.49	\$(532.91)
7	3	155.44	\$4,054.69	\$5,219.19	\$1,164.50
8	3	59.89	\$2,632.51	\$2,080.48	\$(552.03)
11	1	61.18	\$3,286.61	\$1,802.82	\$(1,483.79)
12	1	113.48	\$4,414.91	\$3,772.69	\$(642.22)
13	1	126.44	\$4,858.86	\$4,223.87	\$(634.98)
24	2	174.12	\$8,090.51	\$6,433.27	\$(1,657.25)

Table 2-3 is difficult to interpret as the costs incorporate the number of EDU's which does not correlate well to meter size which the proposed rate structure is based upon. Table 2-4 presents the same analysis based upon meter size.

**TABLE 2-4**

Average water rate impacts across all users based upon Meter Size

Meter Size	No. Accounts	Average Usage	2018	2019	Delta
5/8"	3,275	17.52	\$471.60	\$452.76	\$(18.84)
1"	30	38.22	\$1,133.68	\$1,253.04	\$ 119.35
1.5"	6	89.22	\$2,010.82	\$3,346.92	\$ 1,336.10
2"	21	105.47	\$3,591.49	\$4,109.03	\$ 517.53
3"	5	341.21	\$9,294.59	\$12,947.83	\$ 3,653.24

As discussed in section 1.4, the larger meter sizes were essentially underpaying for debt costs as compared to a conventional rate structure. The difference between the two rate structures is shown in the right most 'delta' column.

Ironically, in the sewer enterprise, the exact opposite situation was occurring, where larger EDU accounts were overpaying their share of debt as compared to a conventional rate structure. In order to understand the net effect, both water and sewer charges must be compared simultaneously.

Next, we look at the water rate impacts for a typical residential user. Figure 2-9 shows the customer rate user impacts section from the rate model.

**FIGURE 2-9**

Water User Impacts on Typical Residential User

Quarterly Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 104.04	\$ 113.93	\$ 119.86	\$ 119.86	\$ 129.65	\$ 129.65	
Proposed	\$ 104.04	\$ 87.26	\$ 113.44	\$ 120.24	\$ 120.24	\$ 120.24	
Increase in Quarterly Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 14.83	\$ 9.89	\$ 5.93	\$ -	\$ 9.79		
Proposed	\$ 14.83	\$ (16.78)	\$ 26.18	\$ 6.81	\$ -	\$ -	
Annual Cost							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	Five Year Total
Existing	\$ 416.16	\$ 455.72	\$ 479.45	\$ 479.45	\$ 518.62	\$ 518.62	\$ 2,451.85
Proposed	\$ 416.16	\$ 349.03	\$ 453.74	\$ 480.97	\$ 480.97	\$ 480.97	\$ 2,245.68
Increase in Annual Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 59.34	\$ 39.56	\$ 23.74	\$ -	\$ 39.16	\$ -	
Proposed	\$ 59.34	\$ (67.12)	\$ 104.71	\$ 27.22	\$ -	\$ -	
Annual Cost as % MHI (City wide MHI from 2010 Census)							
Scenario	FY18	FY19	FY20	FY21	FY22		
Existing	0.47%	0.51%	0.54%	0.54%	0.58%		
Proposed	0.47%	0.39%	0.51%	0.54%	0.54%		

The rate impacts show above were developed for a residential customer with 1 EDU using 71.7 HCF per year - this value is equal to the RGPCD (Residential Gallons Per Capita Per

Day) value of 71.7<sup>6</sup> which is reported by the Town to the MADEP (Massachusetts Department of Environmental Management) on an annual basis. The number of people per household is 2.9 which was obtained by the USCensus Quick Facts website.

The existing rate impacts reflect the cost to the typical residential user under the existing rate structure with the **required rate adjustments shown in Figure 2-6**. Under the annual cost the total annual cost for the six-year period is shown for both alternatives to better understand the total impact.

The annual cost as % Median Household Income is known as the Residential Indicator. The Residential Indicator is a commonly accepted measure of the economic burden of water and sewer costs. The Residential Indicator is considered be low burden if it is less than 1%, a mid-range burden if it is between 1% and 2% and a high burden if it is greater than 2%.

There has been much discussion in the water and sewer industry about the appropriateness of using the Residential Indicator to assess affordability. The most common criticisms center around the fact that the median household income is not a good basis due to the broad distribution of incomes in a given community. A full affordability analysis is beyond the scope of this study and would look more deeply into the income distribution across the Town.

---

<sup>6</sup> Note that the goal for RGPCD set by the MADEP is 65, showing that Uxbridge may benefit from conservation measures.

## **Section 3**

### **Sewer Enterprise**

The sewer system consists of 50 miles of sewer pipes which collect wastewater from 2,380 customers in town (51%). Five sanitary sewer pump stations help deliver the flow to the town's 2.5 Million Gallon Per Day (MGD) Wastewater Treatment facility. Note that it is common to have more water customers than sewer as water is often the first (and sometimes only) public utility to be extended to new developments.

#### **3.1 Usage Evaluation**

As discussed in Section 1.3 water consumption is used as a proxy for sewer use. The water meter records all water that passes through the meter, however not all of this water becomes wastewater. Some water is consumed directly and through cooking (referred to as consumptive use) and some water is used for outside use such as irrigation, car washing, etc.

Some communities base the sewer usage on a percentage of overall water use to account for consumptive use, however this exercise is largely academic, as applying a blanket reduction across the entire enterprise only raises the cost of each unit of sewer use. Irrigation use may represent a much more significant volume than consumptive use. Irrigation is generally associated with automatic lawn sprinkler systems and as such can be measured separately if desired. In recognition of the fact that water used for irrigation will not enter the sewer system, Uxbridge allows customers that have irrigation systems to install a second meter to record irrigation usage separately. It is worth noting that not all communities allow this practice and it can be considered a 'customer friendly' policy.

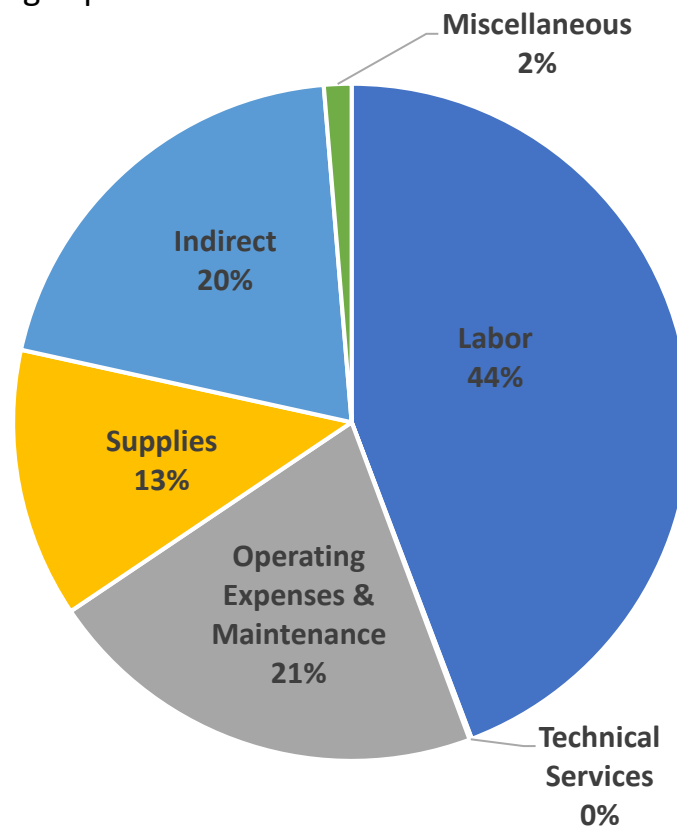
#### **3.2 Expenses**

Expenses are broken down into three primary categories: operating, capital and debt. See Appendix B for more information on the data referenced here.

##### **3.2.1 Operating Expenses**

The operating expense for the sewer enterprise are identical in nature to those for the water system and are handled in similar fashion including indirects. For a more complete description of operating expenses, see Section 2.2.1. Figure 3-1 shows the breakdown of operating expenses for FY18.

**Figure 3-1**  
Sewer Operating Expenses FY18



### 3.2.2 Capital Expenses

Wastewater systems are composed of two primary components, collection and treatment, and the capital needs are generally grouped accordingly. The collection system consists of the pipes that collect the wastewater from each service and pump stations that are used at low points to pump sewage either directly to the treatment plant or to a collector sewer further downstream in the system.

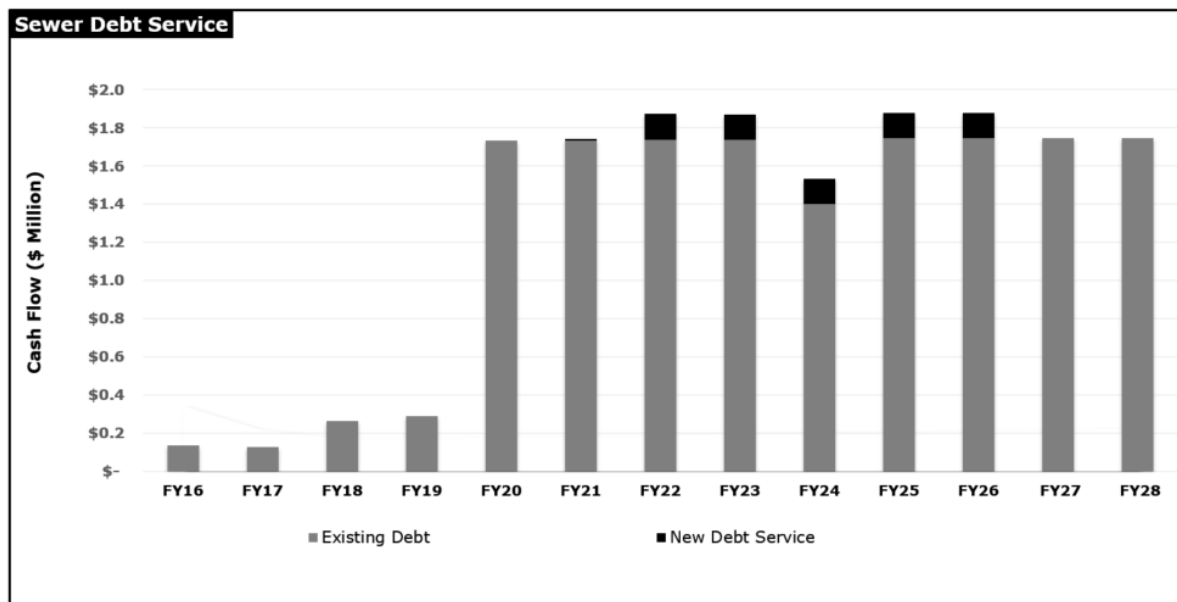
In terms of capital expenses, a wastewater treatment facility is the largest liability. Treatment plants are large, complex infrastructure components that require regular investment to either maintain equipment or meet new permit limits. In Uxbridge, like many other communities, the Town was required to upgrade the treatment plant to meet phosphorus limits. The Town received a consent decree which legally obligated the Town to upgrade its facility. In April 2016 the Town approved a \$44.8M borrowing for this upgrade. Thus, the majority of the Town's capital expenses for the sewer system consist of this upgrade in the form of new debt service.

## 3.3 Debt

The largest driver for rate increases for the sewer enterprise is to fund the debt associated with the treatment plant upgrade. In the model we treated this debt as existing debt

because it has already been approved. Otherwise it is treated the same as new debt in setting rates. Figure 3-2 shows the increase in overall debt service.

**TABLE 3-2**  
Sewer Debt Service



### 3.4 Revenue

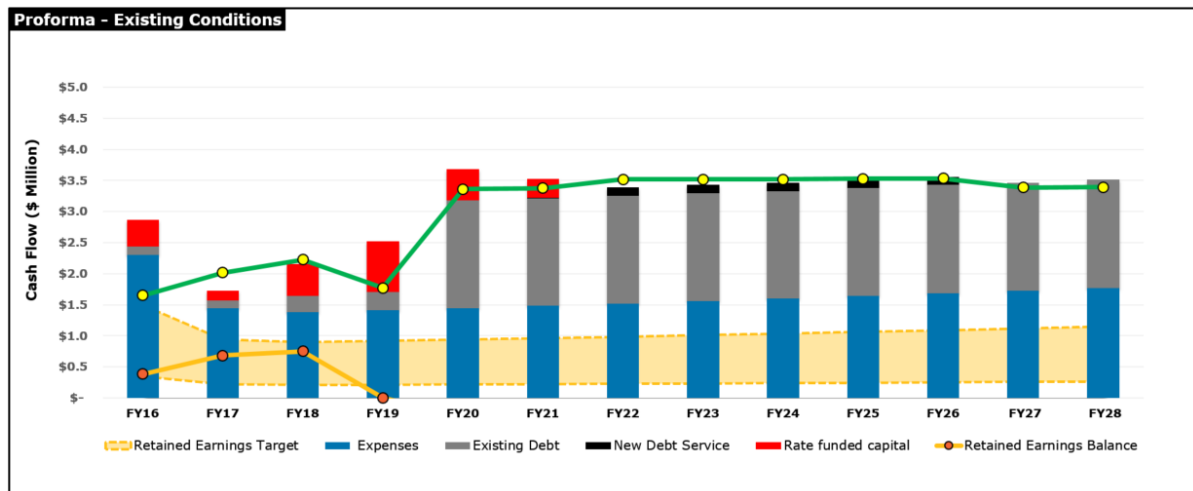
Similar to Water, sewer utility revenue consists of two components: rate revenue and non-rate revenue. Rate revenue represents the total amount billed to customers in a given year while non-rate revenue consists of fees, charges and investment income. About 90% of revenue is rate revenue.

Rate revenue is a direct function of the number of customers and the amount of water consumed. Rate revenue is calculated based upon the projected usage discussed in section 2.1 Usage Evaluation. The calculated (Model) revenue is then compared to the commitments, which represent the total value of all water bills, to determine the model's accuracy. For FY16 and FY17 the calibration factor was 0.15% which is outstanding.

Not all users pay their bills on time, and the ratio of actual revenue to the committed or billed revenue is known as the collection ratio. For Uxbridge, this value averaged 93% over the last two years which is about average. The revenue for unpaid bills is collected through the municipal lien process which results in deferred revenue from previous years being added to collections for the current year. Since our rate model is designed to evaluate varying rate scenarios, we determine a lien revenue factor based upon the current year's model revenue. To do this we calculate the percentage of revenue that is based upon liens. For Uxbridge the factor is 6%, in other words, each year the water and sewer divisions collect payments from liens that equal 6% of the current year's rate receipts. Figure 3-3 shows the proforma for the sewer enterprise under existing rates. Note that the CIF's are shown projected as 110% of total debt service like the water enterprise.

Figure 3-3

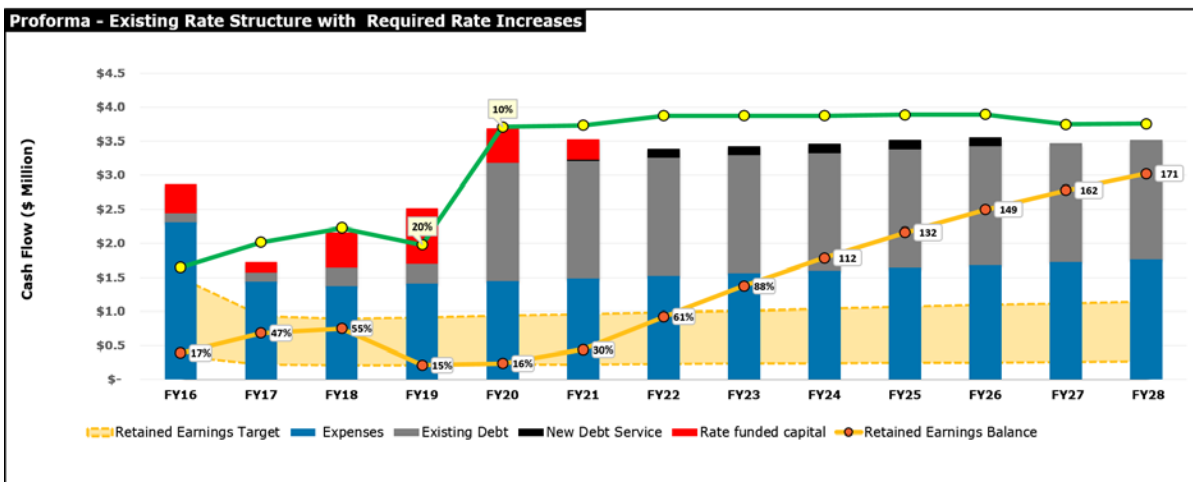
Sewer system proforma with existing rates and rate structure



Like the water system, the proforma shows that the sewer system will not have sufficient revenue to fully support the sewer enterprise starting in FY21 without drawing down reserves below the recommended 20% threshold. However, in order to effectively compare the existing rate structure with the proposed we must also consider that rate increases are needed under either scenario. For the purposes of this comparison we have calculated rate increases based upon the existing rate structure as well. These rate increases are shown below.

Figure 3-4

Sewer system proforma with existing rate structure and required rate increases



**Figure 3-5**

Sewer System Proforma – Existing Sewer Rate Structure with required rate increases

Revenue - Alt. B	Fiscal Year / Rate Increase					
	FY16	FY17	FY18	FY19	FY20	FY21
Rate Revenue	\$ 1,001,129	\$ 1,054,430	\$ 1,106,447	\$ 1,323,647	\$ 1,465,597	\$ 1,476,613
Non-Rate Revenue	\$ 489,968	\$ 517,282	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500
Capital Improvement (CIF)	\$ 157,450	\$ 447,119	\$ 782,746	\$ 318,156	\$ 1,906,078	\$ 1,918,626
<b>Total Revenue</b>	<b>\$ 1,648,546</b>	<b>\$ 2,018,831</b>	<b>\$ 2,227,692</b>	<b>\$ 1,980,303</b>	<b>\$ 3,710,175</b>	<b>\$ 3,733,739</b>

As described previously, the CIF charge is based upon existing debt service which is distributed according to the number of EDU's a customer has. However, in FY18 the Town added \$520,000 to the debt amount to be covered, which was intended to be a one-time adjustment intended to increase revenue in light of the pending increase in debt service due to the treatment plant upgrade project. The impact of this was that the CIF rate rose to \$88 per EDU in FY18 from the previous \$48 per EDU, using the same methodology to calculate CIF's, we estimate that the per EDU CIF charge would range from \$140 - \$150 for the period FY19 to FY23.

### 3.5 Proposed Sewer Rate Structure

Figure 3-6 shows the proforma under the proposed rate structure with the increases indicated. Similar to the proposed water rates, the proposed sewer rates eliminate the CIFs and instead distribute capital expenses through consumption. Unlike water, the rates are based upon a single quarterly base charge that is paid by all customers and a single tier usage charge which is paid by all customers based upon usage. Similar to the existing rate structure, 800CF is included with the base charge.

**Figure 3-6**

Sewer system proforma with proposed rate structure and required rate increases

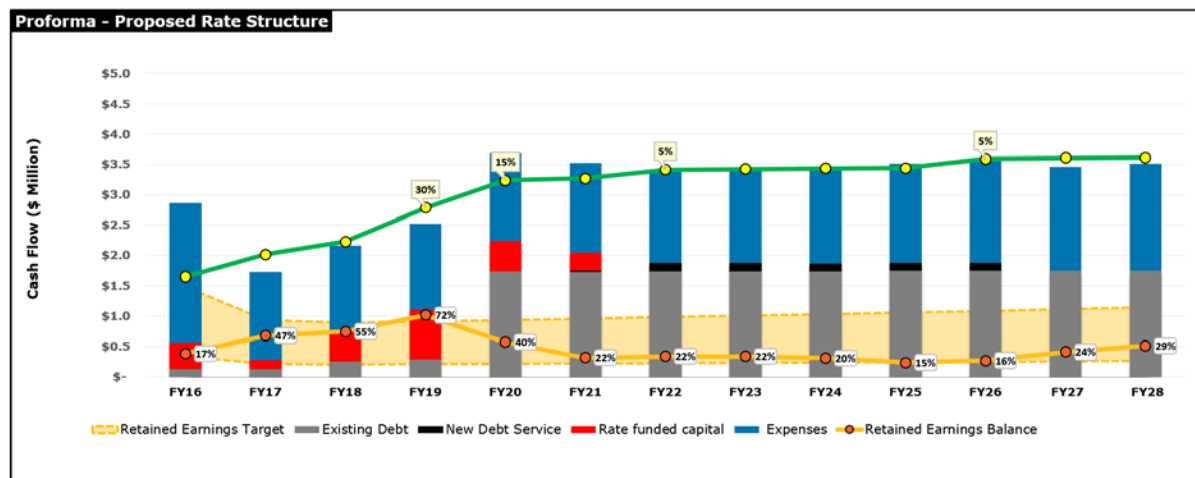


Figure 3-7 shows an excerpt from the model dashboard

**FIGURE 3-7**

Proposed Sewer Rates

Revenue	Rate Increase	FY16	FY17	FY18	FY19	FY20	FY21
					128%	15%	
Rate Revenue		\$ 1,001,129	\$ 1,054,430	\$ 1,106,447	\$ 2,452,483	\$ 2,904,004	\$ 2,933,090
Non-Rate Revenue		\$ 489,968	\$ 517,282	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500
Capital Improvement (CIF)		\$ 157,450	\$ 447,119	\$ 782,746			
Total Revenue		\$ 1,648,546	\$ 2,018,831	\$ 2,227,692	\$ 2,790,983	\$ 3,242,504	\$ 3,271,590

As with the proposed water rates, the rate increases shown are designed to maintain a reserve balance at or above 15% of operating expenses. An excerpt of the rate model dashboard is shown above, and the entire dashboard can be found in appendix B. Similar to the discussion in Section 2.5 the rate increase of 128% for FY19 reflects the fact that the sewer rates are now covering debt service costs, the effective rate increase is 30% for FY19 as shown in Figure 3-6. Table 3-1 summarizes the existing and proposed sewer rates.

**TABLE 3-1**

Proposed Sewer Rates

Description	Type	FY18	FY19	FY20	FY21
Base Charge	Usage	\$43.80	\$99.86	\$114.84	\$114.84
Usage	Usage	\$7.01	\$15.98	\$18.38	\$18.38

FY18 represents the current rate structure while FY19 through FY21 show the proposed rates. The rate structure alone does not indicate the actual impacts to users, which is discussed further in the following section.

## 3.6 Sewer Rate Customer Impacts

### 3.6.1 Initial transition to new rate structure

Rate impacts are an important element of any rate study. Normally the focus is on the 'Typical Residential User', and while that is important in Uxbridge, the study also examined the impact on all users due to the reallocation of debt expenses. Thus, this section deals with the initial change to a usage-based rate structure, and in Section 3.6.2 we will evaluate the subsequent rate impacts based upon the proposed rate structure.

Table 3-2 shows the estimated rate impacts for various numbers of EDU's. The source data for this table was the detailed (account level) consumption data provided by the Town and used to determine the usage trends discussed in Section 2.1. This data was cross referenced to the number of EDU's assigned to each account using Town provided Data. The average consumption represents the average of the last four meter reading events in the consumption data and represents the period from April 2016 to March 2017. Number of accounts indicates how many accounts have been assigned the number of EDU's in the first column. Average usage represents the sum of the individual average usages described above divided by the number of accounts for each EDU category. Annual costs are calculated based upon existing rate / CIF structure for F18 and the new proposed rates

for FY19. Note that because the estimated costs shown below are based upon average usage for each EDU class, it appears that all bills will go down under the proposed rate structure. Customers using more than the average will have different impacts. Also note that Table 3-2 only shows the impacts associated with transitioning to the new rate structure, while rate impacts once the transition has occurred are shown in Figure 3-4.

**TABLE 3-2**

Average sewer rate impacts across all users based upon EDUs

No. EDUs	No. Accounts	Average Usage	FY18	Annual Cost FY19	Delta
1	1,911	18.75	\$829	\$1,087	\$258
2	239	23.20	\$1,315	\$1,391	\$77
3	54	34.98	\$2,002	\$2,155	\$153
4	20	46.23	\$2,661	\$2,856	\$194
5	8	53.24	\$3,343	\$3,606	\$263
6	11	68.87	\$3,804	\$3,854	\$51
7	2	45.65	\$3,696	\$2,806	-\$890
8	3	59.89	\$4,448	\$3,717	-\$731
11	1	61.18	\$5,541	\$3,799	-\$1,741
13	1	126.44	\$8,075	\$7,971	-\$103
30	1	182.52	\$15,635	\$11,556	-\$4,078
56	1	378.25	\$30,280	\$24,070	-\$6,210
61	1	389.07	\$32,345	\$24,762	-\$7,583

Figure 3-2 shows the impact of reallocating debt cost from larger users that were determined to be overcontributing based upon the analysis shown in Section 1.5.2.

### 3.6.2 Customer impacts under proposed rate structure

Whether Uxbridge decides to adopt the proposed rate structure or not, it is clear that rising expenses require an increase in user rates. In Section 3.5.1 we examined the impacts of the transition to the proposed rate structure, and in this section we look at future rate impacts under the proposed rate structure.

**FIGURE 3-3**

Typical residential customer impacts

Including CIF assuming 1 EDU

Rate Increases							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	--	20%	10%	--	--	--	
Proposed	--	30%	15%	--	5%	--	
Quarterly Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 207.21	\$ 278.36	\$ 293.55	\$ 293.55	\$ 303.45	\$ 303.04	
Proposed	\$ 207.21	\$ 271.68	\$ 312.43	\$ 312.43	\$ 328.05	\$ 328.05	
Increase in Quarterly Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 8.66	\$ 71.16	\$ 15.19	\$ -	\$ 9.90	\$ -	
Proposed	\$ 90.77	\$ 64.47	\$ 40.75	\$ -	\$ 15.62	\$ -	
Annual Cost							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	Five Year Total
Existing	\$ 828.83	\$ 1,113.46	\$ 1,174.22	\$ 1,174.22	\$ 1,213.80	\$ 1,212.18	\$ 5,887.87
Proposed	\$ 828.83	\$ 1,086.72	\$ 1,249.72	\$ 1,249.72	\$ 1,312.21	\$ 1,312.21	\$ 6,210.58
Delta	\$ -	\$ (26.74)	\$ 75.51	\$ 75.51	\$ 98.41	\$ 100.03	\$ 322.72
Increase in Annual Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 34.65	\$ 284.63	\$ 60.76	\$ -	\$ 39.58	\$ -	
Proposed	\$ 34.65	\$ 257.89	\$ 163.01	\$ -	\$ 62.49	\$ -	
Residential Indicator		Median Household Income =		\$ 88,750 *			
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	0.93%	1.25%	1.32%	1.32%	1.37%	1.37%	
Proposed	0.93%	1.22%	1.41%	1.41%	1.48%	1.48%	

The rate impacts show above were developed for a residential customer with 1 EDU using 71.7 HCF per year - this value is equal to the RGPCD (Residential Gallons Per Capita Per Day) value of 71.7 which is reported by the Town to the MADEP (Massachusetts Department of Environmental Management) on an annual basis. The number of people per household is 2.9 which was obtained by the USCensus Quick Facts website.

The existing rate impacts reflect the cost to the typical residential user under the existing rate structure with the **required rate adjustments shown in Figure 3-6**. Under the annual cost the total annual cost for the six-year period is shown for both alternatives to better understand the total impact. Note that based upon the increase in debt costs

The annual cost as % Median Household Income is known as the Residential Indicator. The Residential Indicator is a commonly accepted measure of the economic burden of water and sewer costs. The Residential Indicator is considered be low burden if it is less than 1%, a mid-range burden if it is between 1% and 2% and a high burden if it is greater than 2%.

## Section 4

# Conclusions and Recommendations

The Town of Uxbridge must increase revenues for both the water and sewer utilities. In this evaluation we have defined what those increases need to be under either the existing rate structures and under more conventional rate structures. Choosing between the two options is a difficult decision to make as it requires the Town to consider impacts to small and large users alike.

The primary difference between the existing and proposed rate structures centers on the distribution of debt service costs. In the current water rate structure, larger users share less of the debt cost. This is difficult to visualize as there are a number of factors that go into the consideration. In Tables 4-1 and 4-2 we summarize the net impacts based upon both water and sewer by EDU's and by Meter Size.

**TABLE 4-1**

Combined rate impacts across all users based upon EDUs

No. EDUs	No. Accounts	Average Usage	Annual Cost (Water and Sewer)		
			FY18	FY19	Delta
1	1,911	18.75	\$890	\$981	\$91
2	239	23.20	\$1,864	\$1,819	-\$44
3	54	34.98	\$2,724	\$2,971	\$246
4	20	46.23	\$3,563	\$3,591	\$27
5	8	53.24	\$4,988	\$6,467	\$1,479
6	11	68.87	\$5,528	\$5,042	-\$486
7	2	45.65	\$6,519	\$7,090	\$571
8	3	59.89	\$7,099	\$5,840	-\$1,259
11	1	61.18	\$8,827	\$5,602	-\$3,225
13	1	126.44	\$4,415	\$3,773	-\$642
30	1	182.52	\$12,934	\$12,195	-\$738
56	1	378.25	\$8,091	\$6,433	-\$1,657
61	1	389.07	\$25,181	\$18,282	-\$6,900

**TABLE 4-2**

Combined rate impacts across all users based upon Meter Size

Meter Size	No. Accounts	Average Usage	Annual Cost (Water and Sewer)		
			2018	2019	Delta
5/8"	3,275	17.52	\$1,061	\$1,128	\$67
1"	30	38.22	\$2,116	\$2,449	\$333
1.5"	6	89.22	\$2,620	\$4,469	\$1,849
2"	21	105.47	\$6,013	\$5,996	-\$16
3"	5	341.21	\$15,764	\$17,900	\$2,137

In Figure 4-1 we show the combined water and sewer rate impacts on the typical residential user

**FIGURE 4-1**

## Combined rate impacts for Typical Residential user

Calculations based on 5/8" meter customer costs and 1 Equivalent dwelling unit

Quarterly Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 104.04	\$ 113.93	\$ 119.86	\$ 119.86	\$ 129.65	\$ 129.65	
<b>Proposed</b>	<b>\$ 104.04</b>	<b>\$ 87.26</b>	<b>\$ 113.44</b>	<b>\$ 120.24</b>	<b>\$ 120.24</b>	<b>\$ 120.24</b>	

Increase in Quarterly Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 14.83	\$ 9.89	\$ 5.93	\$ -	\$ 9.79		
<b>Proposed</b>	<b>\$ 14.83</b>	<b>\$ (16.78)</b>	<b>\$ 26.18</b>	<b>\$ 6.81</b>	<b>\$ -</b>	<b>\$ -</b>	

Annual Cost							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	Five Year Total
Existing	\$ 416.16	\$ 455.72	\$ 479.45	\$ 479.45	\$ 518.62	\$ 518.62	\$ 2,451.85
<b>Proposed</b>	<b>\$ 416.16</b>	<b>\$ 349.03</b>	<b>\$ 453.74</b>	<b>\$ 480.97</b>	<b>\$ 480.97</b>	<b>\$ 480.97</b>	<b>\$ 2,245.68</b>

Increase in Annual Bill							
Scenario	FY18	FY19	FY20	FY21	FY22	FY23	
Existing	\$ 59.34	\$ 39.56	\$ 23.74	\$ -	\$ 39.16	\$ -	
<b>Proposed</b>	<b>\$ 59.34</b>	<b>\$ (67.12)</b>	<b>\$ 104.71</b>	<b>\$ 27.22</b>	<b>\$ -</b>	<b>\$ -</b>	

Annual Cost as % MHI (City wide MHI from 2010 Census)							
Scenario	FY18	FY19	FY20	FY21	FY22		
Existing	0.47%	0.51%	0.54%	0.54%	0.58%		
<b>Proposed</b>	<b>0.47%</b>	<b>0.39%</b>	<b>0.51%</b>	<b>0.54%</b>	<b>0.54%</b>		

We believe that the proposed rate structures distribute costs more equitably across the users and recommend that Uxbridge adopt the proposed rate structures described herein.

## **APPENDIX A – WATER RATE MODEL**

Water Utility Rate Dashboard

Uxbridge Water

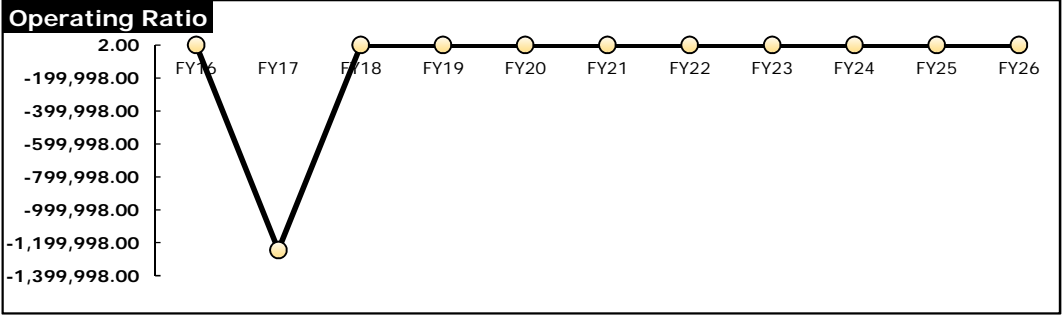
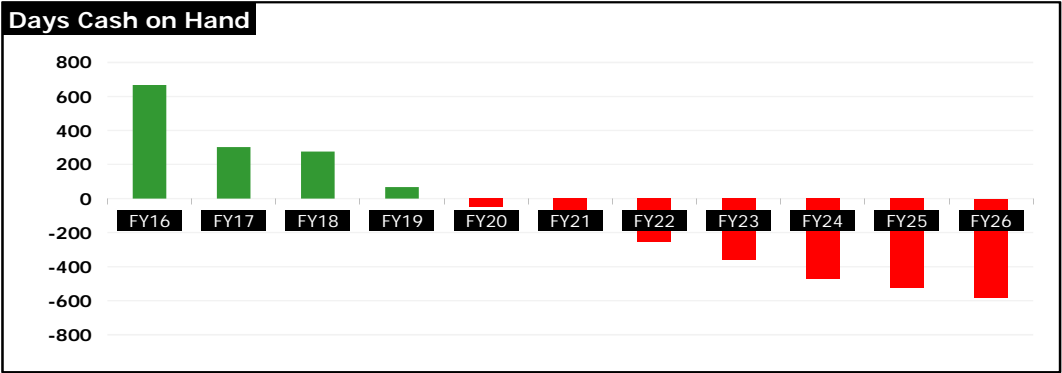
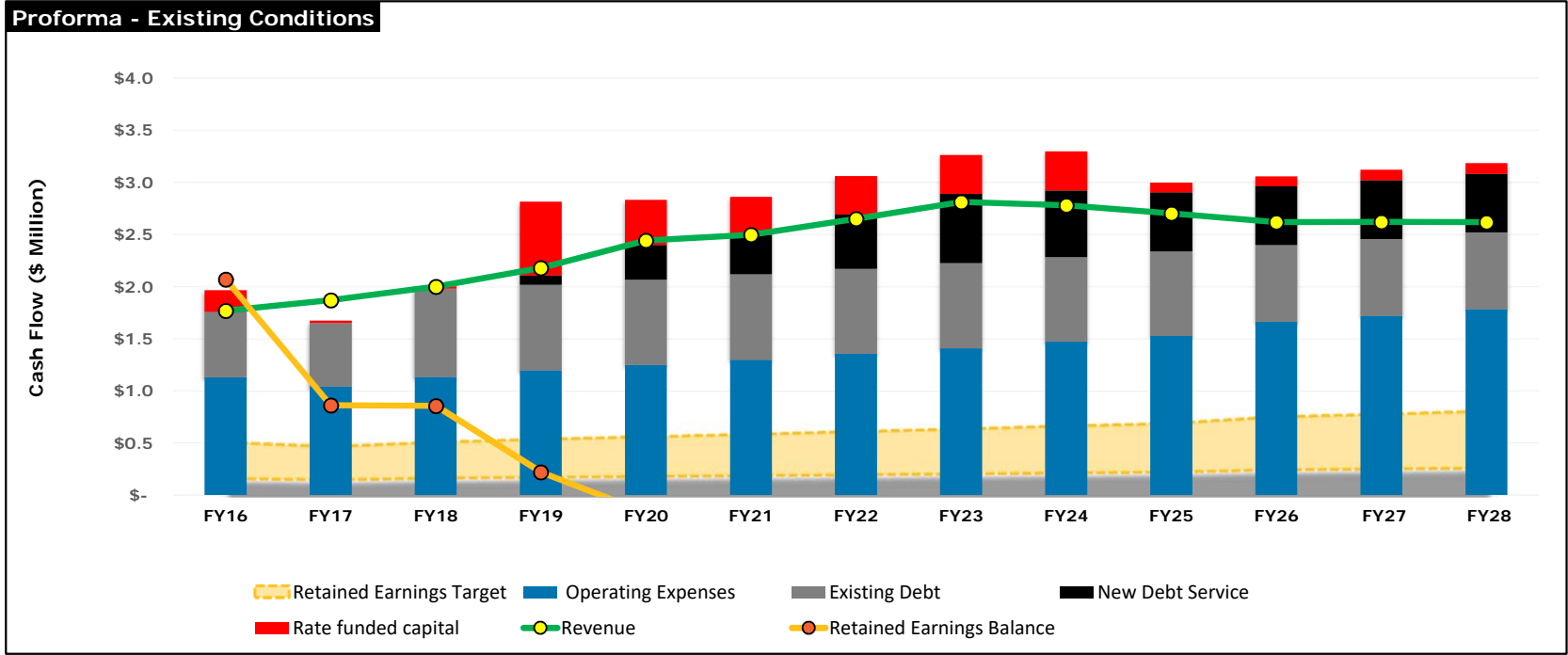
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Operating Expenses													
Labor	\$432,367	\$454,037	\$479,500	\$504,752	\$517,371	\$530,305	\$543,563	\$557,152	\$571,081	\$585,358	\$599,992	\$614,991	\$630,366
Operating Expenses & Maintenance	\$180,718	\$189,671	\$202,115	\$232,750	\$237,031	\$242,957	\$249,031	\$255,257	\$261,638	\$268,179	\$274,884	\$281,756	\$288,800
Supplies	\$136,825	\$173,808	\$200,000	\$207,000	\$212,175	\$217,479	\$222,916	\$228,489	\$234,202	\$240,057	\$246,058	\$252,209	\$258,515
Indirects	\$244,461	\$169,578	\$195,759	\$204,116	\$232,570	\$256,478	\$287,261	\$313,556	\$348,204	\$374,573	\$481,826	\$509,427	\$543,933
Miscellaneous	\$136,501	\$52,701	\$55,100	\$49,000	\$50,225	\$51,481	\$52,768	\$54,087	\$55,439	\$56,825	\$58,246	\$59,702	\$61,194
Subtotal	\$1,130,871	\$1,039,794	\$1,132,474	\$1,197,618	\$1,249,372	\$1,298,700	\$1,355,539	\$1,408,541	\$1,470,564	\$1,524,991	\$1,661,005	\$1,718,085	\$1,782,808
delta previous		-8%	9%	6%	4%	4%	4%	4%	4%	4%	9%	3%	4%
Capital & Debt													
Rate funded capital	\$208,254	\$24,970	\$25,000	\$706,000	\$432,025	\$365,746	\$368,565	\$371,488	\$374,518	\$92,258	\$95,514	\$98,889	\$102,387
Existing Debt	\$626,187	\$609,670	\$846,241	\$820,221	\$817,375	\$819,716	\$815,838	\$817,120	\$810,739	\$813,344	\$735,789	\$738,628	\$735,323
New Debt Service	\$0	\$0	\$0	\$89,960	\$331,356	\$377,228	\$518,357	\$663,253	\$639,396	\$565,224	\$564,400	\$563,576	\$562,752
Subtotal	\$834,441	\$634,640	\$871,241	\$1,616,181	\$1,580,756	\$1,562,690	\$1,702,760	\$1,851,862	\$1,824,653	\$1,470,826	\$1,395,703	\$1,401,092	\$1,400,462
delta previous		-24%	37%	86%	-2%	-1%	9%	9%	-1%	-19%	-5%	0%	0%
TOTAL EXPENSES	\$1,965,312	\$1,674,434	\$2,003,715	\$2,813,799	\$2,830,129	\$2,861,390	\$3,058,299	\$3,260,403	\$3,295,217	\$2,995,818	\$3,056,707	\$3,119,178	\$3,183,270
	32%	36%	42%	29%	29%	29%	27%	25%	25%				

1. Indirects oringinally included fuel and debt. Values shown reflect existing debt removed.

Current Rate Structure  
Do Nothing

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Revenue - Existing	Rate Increase												
Rate Revenue	\$ 852,339	\$ 801,599	\$ 983,930	\$ 1,008,356	\$ 1,009,736	\$ 1,011,124	\$ 1,012,519	\$ 1,013,920	\$ 1,015,329	\$ 1,016,745	\$ 1,018,167	\$ 1,019,597	\$ 1,021,034
Non-Rate Revenue	\$ 223,025	\$ 374,690	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500
Capital Improvement (CIF)	\$ 693,478	\$ 692,431	\$ 846,241	\$ 1,001,199	\$ 1,263,605	\$ 1,316,639	\$ 1,467,614	\$ 1,628,411	\$ 1,595,149	\$ 1,516,425	\$ 1,430,208	\$ 1,432,424	\$ 1,427,883
TOTAL REVENUE	\$ 1,768,842	\$ 1,868,721	\$ 1,998,671	\$ 2,178,055	\$ 2,441,841	\$ 2,496,263	\$ 2,648,633	\$ 2,810,831	\$ 2,778,978	\$ 2,701,669	\$ 2,616,875	\$ 2,620,522	\$ 2,617,417
delta previous	\$ (85,213)	\$ (99,879)	\$ 182,331	\$ 24,425	\$ 1,381	\$ 1,388	\$ 1,395	\$ 1,402	\$ 1,409	\$ 1,416	\$ 1,423	\$ 1,430	\$ 1,437
Net Revenue (Revenue-Expense)	\$ (196,470)	\$ 194,287	\$ (5,044)	\$ (635,744)	\$ (388,288)	\$ (365,127)	\$ (409,666)	\$ (449,571)	\$ (516,239)	\$ (294,148)	\$ (439,832)	\$ (498,656)	\$ (565,853)
Retained Earnings Balance	\$2,066,908	\$861,195	\$856,151	\$220,407	-\$167,881	-\$533,008	-\$942,674	-\$1,392,245	-\$1,908,484	-\$2,202,632	-\$2,642,464	-\$3,141,120	-\$3,706,973
retained earnings available	\$ 1,840,734	\$635,020	\$ 629,656	\$ (19,117)	\$ (417,756)	\$ (792,748)	\$ (1,213,781)	\$ (1,673,953)	\$ (2,202,596)	\$ (2,507,630)	\$ (2,974,665)	\$ (3,484,737)	\$ (4,063,535)

\$1.4M subtracted from FY17 RE to reflect meter costs

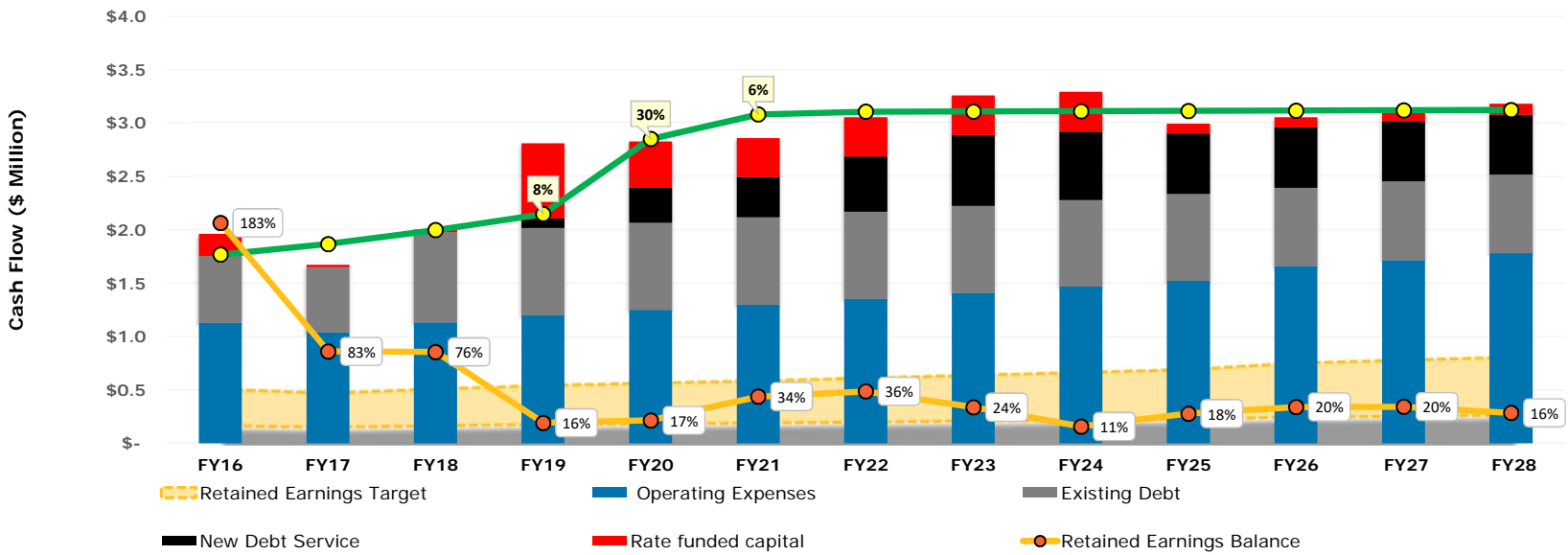


Customer Impacts (Annual)							
Scenario	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Total Cost	\$ 356.82	\$ 416.16	\$ 455.72	\$ 479.45	\$ 479.45	\$ 518.62	\$ 2,706
Cost Increase	\$ 59.34	\$ 39.56	\$ 23.74	\$ -	\$ 39.16		

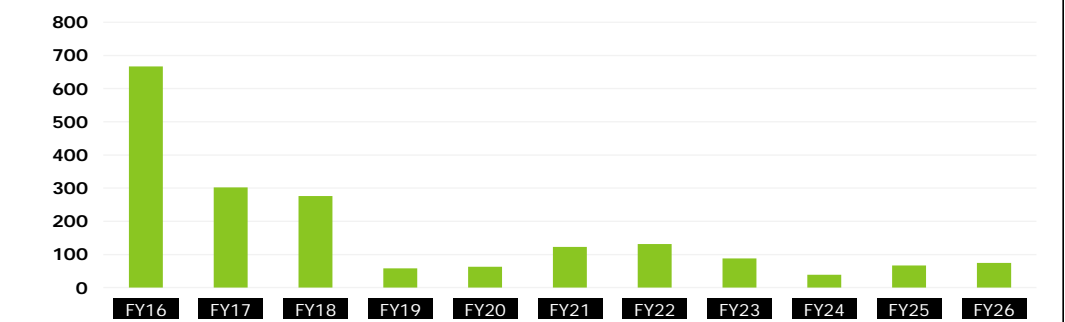
Recommended Rate Structure  
and Required Rate Increases

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Revenue				100%	30%	6%							
Rate Revenue	\$ 852,339	\$ 801,599	\$ 983,930	\$ 1,980,229	\$ 2,684,503	\$ 2,915,586	\$ 2,940,152	\$ 2,942,805	\$ 2,945,472	\$ 2,948,151	\$ 2,950,845	\$ 2,953,551	\$ 2,956,271
Non-Rate Revenue	\$ 223,025	\$ 374,690	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500
Capital Improvement (CIF)	\$ 693,478	\$ 692,431	\$ 846,241										
Total Revenue	\$ 1,768,842	\$ 1,868,721	\$ 1,998,671	\$ 2,148,729	\$ 2,853,003	\$ 3,084,086	\$ 3,108,652	\$ 3,111,305	\$ 3,113,972	\$ 3,116,651	\$ 3,119,345	\$ 3,122,051	\$ 3,124,771
delta previous			\$ 182,331	\$ 996,298	\$ 704,275	\$ 231,082	\$ 24,566	\$ 2,653	\$ 2,666	\$ 2,680	\$ 2,693	\$ 2,707	\$ 2,720
effective rate increase				8%	30%	6%							
Net Revenue (Revenue-Expense)	\$ (196,470)	\$ 194,287	\$ (5,044)	\$ (665,070)	\$ 22,875	\$ 222,696	\$ 50,353	\$ (149,097)	\$ (181,245)	\$ 120,834	\$ 62,637	\$ 2,873	\$ (58,499)
Net Revenue No New Debt	\$ (196,470)	\$ 194,287	\$ (5,044)	\$ (575,110)	\$ 354,231	\$ 599,924	\$ 568,710	\$ 514,156	\$ 458,151	\$ 686,058	\$ 627,037	\$ 566,449	\$ 504,253
Retained Earnings Balance	\$2,066,908	\$861,195	\$856,151	\$191,081	\$213,955	\$436,651	\$487,004	\$337,907	\$156,662	\$277,496	\$340,133	\$343,006	\$284,507
Retained Earnings as Percent of Operating Expenses	183%	83%	76%	16%	17%	34%	36%	24%	11%	18%	20%	20%	16%

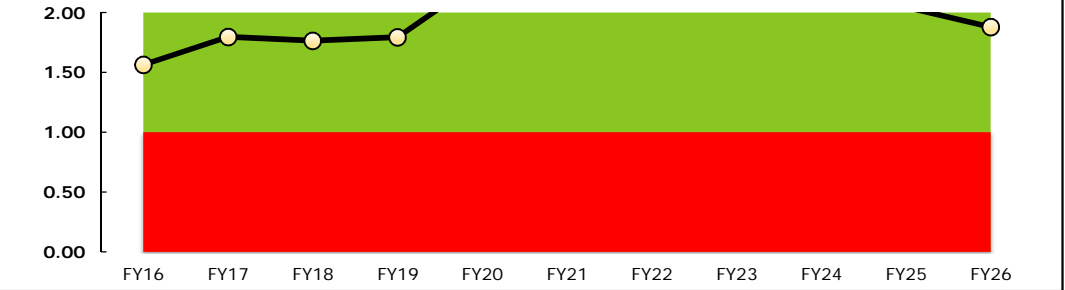
Proforma - Recommended Rates



Days Cash on Hand



Operating Ratio

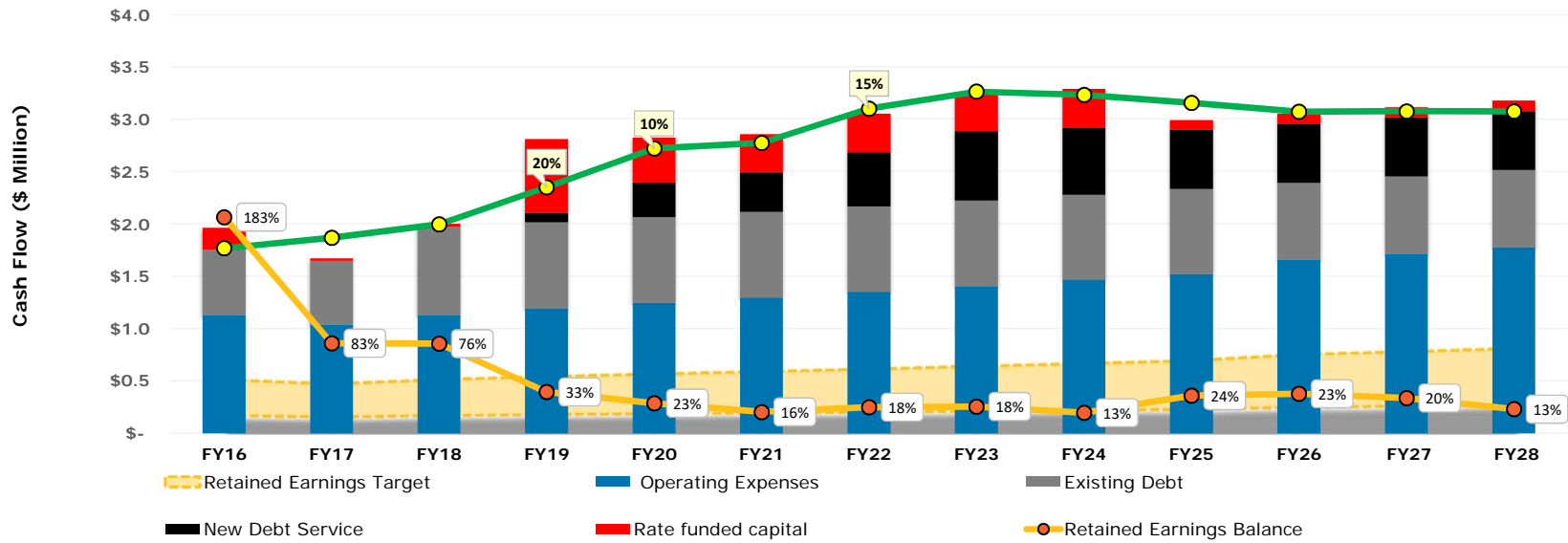


Customer Impacts (Annual)							
Scenario	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Total Cost	\$ 356.82	\$ 416.16	\$ 349.03	\$ 453.74	\$ 480.97	\$ 480.97	\$ 2,538
Cost Increase		\$ 59.34	\$ (67.12)	\$ 104.71	\$ 27.22	\$ -	

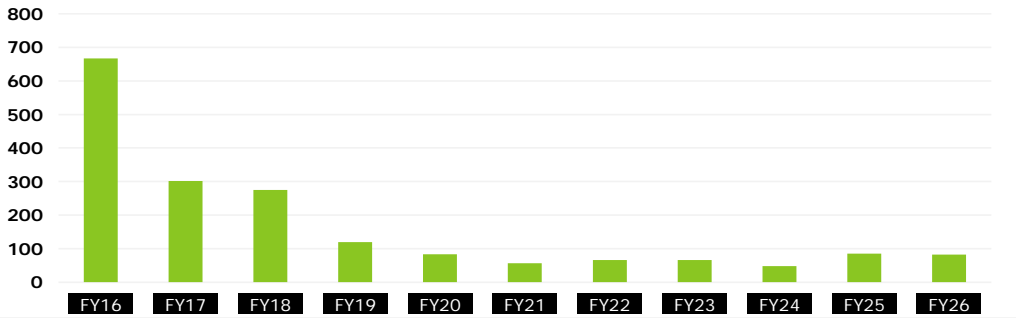
Current Rate Structure  
with Required Rate Increases

	Fiscal Year / Rate Increase													
	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	
Revenue - Alt. B				20%	10%		15%							
Rate Revenue	\$ 852,339	\$ 801,599	\$ 983,930	\$ 1,183,444	\$ 1,290,261	\$ 1,292,035	\$ 1,467,870	\$ 1,469,902	\$ 1,471,945	\$ 1,473,998	\$ 1,476,060	\$ 1,478,134	\$ 1,480,217	
Non-Rate Revenue	\$ 223,025	\$ 374,690	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	\$ 168,500	
Capital Improvement (CIF)	\$ 693,478	\$ 692,431	\$ 846,241	\$ 1,001,199	\$ 1,263,605	\$ 1,316,639	\$ 1,467,614	\$ 1,628,411	\$ 1,595,149	\$ 1,516,425	\$ 1,430,208	\$ 1,432,424	\$ 1,427,883	
Total Revenue	\$ 1,768,842	\$ 1,868,721	\$ 1,998,671	\$ 2,353,143	\$ 2,722,366	\$ 2,777,174	\$ 3,103,984	\$ 3,266,813	\$ 3,235,594	\$ 3,158,922	\$ 3,074,768	\$ 3,079,058	\$ 3,076,600	
Net Revenue (Revenue-Expense)	\$ (196,470)	\$ 194,287	\$ (5,044)	\$ (460,656)	\$ (107,763)	\$ (84,216)	\$ 45,686	\$ 6,411	\$ (59,623)	\$ 163,105	\$ 18,061	\$ (40,120)	\$ (106,670)	
Retained Earnings Balance	\$2,066,908	\$861,195	\$856,151	\$395,495	\$287,732	\$203,516	\$249,201	\$255,612	\$195,989	\$359,094	\$377,155	\$337,035	\$230,364	
Retained Earnings as Percent of Operating Expenses	183%	83%	76%	33%	23%	16%	18%	18%	13%	24%	23%	20%	13%	

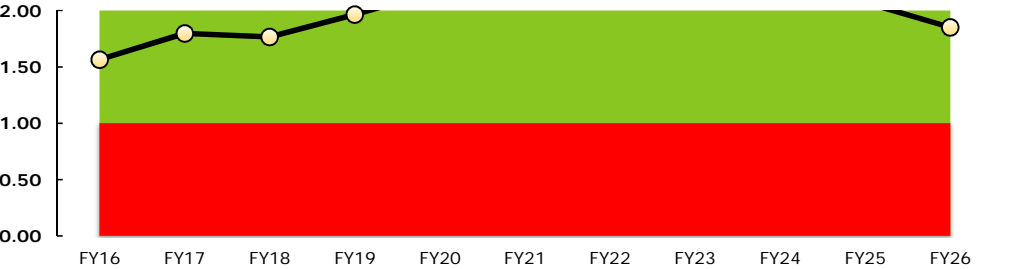
Proforma - Existing Rate Structure with Required Rate Increases



Days Cash on Hand



Operating Ratio



Customer Impacts (Annual)							
Scenario	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Total Cost	\$ 356.82	\$ 416.16	\$ 237.36	\$ 261.09	\$ 261.09	\$ 300.26	\$ 1,833
Cost Increase		\$ 59.34	\$ (178.80)	\$ 23.74	\$ -	\$ 39.16	

2018 Water Rate

Projection	# Accounts	1.0050	1.0 = no change, 0.9 = 10% decrease per year
Variables	Usage	1.000	
		0.50%	
		0.00%	Decrease

Number of Accounts

Historic Values								Projected Values (manual regression) - USED									
User Class	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	
5/8"	3,295	3,295	3,295	3,295	3,295	3,295	3,311	3,328	3,345	3,361	3,378	3,395	3,412	3,429	3,446	3,464	
3/4"							-	-	-	-	-	-	-	-	-	-	
1"	30	30	30	30	30	30	30	30	30	31	31	31	31	31	31	32	
1.5"	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
2"	21	21	21	21	21	21	21	21	21	21	22	22	22	22	22	22	
3"	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
4"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
6"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tier 1	3,357	3,357	3,357	3,357	3,357	3,357	3,374	3,391	3,408	3,425	3,442	3,459	3,476	3,494	3,511	3,529	
Total	3,357	3,357	3,357	3,357	3,357	3,357	3,374	3,391	3,408	3,425	3,442	3,459	3,476	3,494	3,511	3,529	
		-	-	-	-	-	-	17	17	17	17	17	17	17			
								Customer Account Analysis									
								0.00% growth over period									
								0.00% average growth per year									

Total Usage (CF)

Block	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	
Tier 1	9,481,692	9,525,213	9,583,350	9,628,454	9,660,873	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	9,583,350	
Tier 2	11,547,866	11,197,454	11,108,067	11,312,052	10,982,718	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	11,108,067	
Tier 3	4,667,266	4,608,928	4,655,590	5,058,488	4,577,727	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	4,655,590	
Irrigation	2,735,468	2,938,184	3,363,400	3,610,159	2,714,871	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	3,363,400	
						-	-	-	-	-	-	-	-	-	-	-	
Total	28,432,292	28,269,779	28,710,407	29,609,153	27,936,189	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	28,710,407	
			27,421,686	26,599,035	25,801,064	25,027,032											
								Usage analysis									
								-1.74% Change in Consumption over period									
								-0.35% Change in Consumption per year									

Expenses























Utility  
Account Type

Water  
Expense

Sum of YTD Actual Expended		Year					Expense Analysis and Trending				
Category		FY13	FY14	FY15	FY16	FY17	Period Average	Trends	Start Value	Budget	Escalator
LABOR	Water Administrative Salaries	\$ -	\$ -	\$ 36,262	\$ 31,619	\$ 26,697	\$ 31,526.12		\$ 32,000.00	\$ 28,834.00	2.5%
LABOR	Water Duty/On Call	\$ 6,240	\$ 6,240	\$ 280	\$ -	\$ -	\$ 4,253.33		\$ 11,280.00	\$ 11,280.00	2.5%
LABOR	Water Miscellaneous Compensation	\$ 62,727	\$ 63,558	\$ -	\$ -	\$ -	\$ 63,142.51		\$ -	\$ -	2.5%
LABOR	Water Other Earnings	\$ -	\$ -	\$ 7,615	\$ -	\$ -	\$ 7,615.24		\$ -	\$ 577.00	2.5%
LABOR	Water Other Regular Salaries	\$ -	\$ -	\$ 166,402	\$ 178,900	\$ 211,460	\$ 185,587.41		\$ 215,000.00	\$ 228,550.00	2.5%
LABOR	Water Overtime/Shift Coverage	\$ 22,397	\$ 27,968	\$ 43,695	\$ 49,567	\$ 51,241	\$ 38,973.59		\$ 52,000.00	\$ 60,000.00	2.5%
LABOR	Water Part Time/Temp Salaries	\$ -	\$ -	\$ 6,510	\$ 2,315	\$ -	\$ 4,412.54		\$ 2,500.00	\$ 6,720.00	2.5%
LABOR	Water Professional Development	\$ 723	\$ 1,415	\$ -	\$ 140	\$ 2,815	\$ 273.37		\$ 3,000.00	\$ 5,000.00	2.5%
LABOR	Water Professional Salaries	\$ -	\$ -	\$ 91,217	\$ 113,253	\$ 115,077	\$ 106,515.55		\$ 115,000.00	\$ 147,213.00	2.5%
LABOR	Water Professional Services	\$ -	\$ -	\$ 49,097	\$ 46,599	\$ 37,072	\$ 44,256.01		\$ 50,000.00	\$ 10,000.00	2.5%
LABOR	Water Stipends	\$ -	\$ -	\$ -	\$ 9,975	\$ 9,674	\$ 9,824.50		\$ 10,000.00	\$ 6,578.00	2.5%
MISCELLANEOUS	Public Works	\$ -	\$ -	\$ 49,083	\$ -	\$ -	\$ 49,083.00		\$ -	\$ -	2.5%
MISCELLANEOUS	Transfers Out To Capital Projects					\$ 38,358	\$ 38,357.67		\$ 40,000.00	\$ -	2.5%
MISCELLANEOUS	Water Billing/Collection/Printing					\$ 3,098	\$ 3,097.86		\$ 3,100.00	\$ 5,000.00	2.5%
MISCELLANEOUS	Water Business Travel					\$ -	\$ -		\$ 500.00	\$ -	2.5%
MISCELLANEOUS	Water Dues/Memberships/Licenses					\$ 905	\$ 905.00		\$ 1,000.00	\$ 5,000.00	2.5%
MISCELLANEOUS	Water Other Expenses	\$ -	\$ -	\$ 686	\$ 288	\$ 1,526	\$ 833.44		\$ 1,500.00	\$ 6,500.00	2.5%
MISCELLANEOUS	Water Other Services	\$ -	\$ -	\$ 8,592	\$ 21,160	\$ -	\$ 14,876.04		\$ -	\$ -	2.5%
MISCELLANEOUS	Water Public Works Capital	\$ -	\$ -	\$ -	\$ 115,053	\$ -	\$ 115,053.23		\$ -	\$ -	2.5%
MISCELLANEOUS	Water Software Licensing/Saas					\$ 3,249	\$ 3,249.00		\$ 3,500.00	\$ 12,000.00	2.5%
MISCELLANEOUS	Water Technology Support Services					\$ 5,565	\$ 5,565.00		\$ 6,000.00	\$ 20,000.00	2.5%
RATE FUNDED CAPITAL	Rt122 Intended Use Pl	\$ -	\$ -	\$ -	\$ 2,584	\$ -	\$ 2,584.07		\$ -	\$ -	2.5%
RATE FUNDED CAPITAL	Rt122 Main Engineering	\$ -	\$ -	\$ -	\$ 186,642	\$ -	\$ 186,642.33		\$ -	\$ 25,000.00	2.5%
RATE FUNDED CAPITAL	South Uxbridge Water Sewer Feasibility	\$ -	\$ -	\$ -	\$ 19,027	\$ -	\$ 19,027.15		\$ -	\$ -	2.5%
RATE FUNDED CAPITAL	Water Capital Replacement Equipment					\$ 24,970	\$ 24,970.00		\$ 25,000.00	\$ 50,000.00	4.0%
SUPPLIES	Water Clothing Allowance	\$ -	\$ 1,224	\$ 3,298	\$ -	\$ -	\$ 2,260.69		\$ 25,000.00	\$ -	2.5%
SUPPLIES	Water Equipment Repairs & Maintenance	\$ 26,634					\$ 26,633.79		\$ -	\$ -	2.5%
SUPPLIES	Water Public Works Supplies					\$ 171,708	\$ 171,707.85		\$ 175,000.00	\$ 200,000.00	2.5%
SUPPLIES	Water Supplies & Materials	\$ 35	\$ 461	\$ 147,335	\$ 136,825	\$ -	\$ 57,351.22		\$ 7,000.00	\$ 7,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Building Repairs & Maintenance					\$ 44,647	\$ 44,647.16		\$ 45,000.00	\$ 40,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Building Systems					\$ 350	\$ 350.00		\$ 500.00	\$ 10,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Electricity & Heating	\$ 83,812	\$ 80,626	\$ 93,600	\$ 102,611	\$ 81,794	\$ 88,488.48		\$ 90,000.00	\$ 110,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Equipment Repairs & Maintenance		\$ 15,695	\$ -	\$ -	\$ 40,647	\$ 28,170.71		\$ 45,000.00	\$ 50,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Meter Replacement Prg	\$ -	\$ -	\$ -	\$ 8,113	\$ -	\$ 8,112.86		\$ -	\$ -	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Other Building Utilities						#DIV/0!		\$ -	\$ -	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Postage & Mailing					\$ 272	\$ 271.60		\$ 500.00	\$ 250.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Property/Grounds & Maintenance					\$ 1,424	\$ 1,424.26		\$ 1,500.00	\$ 1,500.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Rentals & Leases	\$ -	\$ -	\$ 135	\$ -	\$ 400	\$ -		\$ 400.00	\$ 1,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Repairs (Building/Equip/Grounds)	\$ -	\$ -	\$ 55,377	\$ 69,994	\$ -	\$ 62,685.77		\$ -	\$ -	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Telecommunication					\$ 5,188	\$ 5,187.66		\$ 5,200.00	\$ 5,000.00	2.5%
OPERATING EXPENSES & MAINTENANCE	Water Vehicle Repairs & Maintenance					\$ 14,950	\$ 14,949.54		\$ 15,000.00	\$ 15,000.00	2.5%
INDIRECTS	Water Interfund Operating Transfers (Out)	\$ 1,062,668	\$ 754,799	\$ 807,800	\$ 870,648	\$ 779,248	\$ 855,032.66		see right	\$ -	2.5%
Grand Total		\$ 1,265,237	\$ 951,985	\$ 1,566,986	\$ 1,965,312	\$ 1,674,434	\$ 1,484,790.81		\$ 967,900.00	\$ 1,068,502.00	2.5%

Projected Direct Costs

Category	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
LABOR	\$ 32,000.00	\$ 28,834.00	\$ 29,554.85	\$ 30,293.72	\$ 31,051.06	\$ 31,827.34	\$ 32,623.02	\$ 33,438.60	\$ 34,274.57	\$ 35,131.43	\$ 36,009.71
LABOR	\$ -	\$ 11,280.00	\$ 11,562.00	\$ 11,851.05	\$ 12,147.33	\$ 12,451.01	\$ 12,762.28	\$ 13,081.34	\$ 13,408.38	\$ 13,743.58	\$ 14,087.17
LABOR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LABOR	\$ -	\$ 577.00	\$ 591.43	\$ 606.21	\$ 621.37	\$ 636.90	\$ 652.82	\$ 669.14	\$ 685.87	\$ 703.02	\$ 720.59
LABOR	\$ 215,000.00	\$ 228,550.00	\$ 234,263.75	\$ 240,120.34	\$ 246,123.35	\$ 252,276.44	\$ 258,583.35	\$ 265,047.93	\$ 271,674.13	\$ 278,465.98	\$ 285,427.63
LABOR	\$ 52,000.00	\$ 60,000.00	\$ 61,500.00	\$ 63,037.50	\$ 64,613.44	\$ 66,228.77	\$ 67,884.49	\$ 69,581.61	\$ 71,321.15	\$ 73,104.17	\$ 74,931.78
LABOR	\$ 2,500.00	\$ 6,720.00	\$ 6,888.00	\$ 7,060.20	\$ 7,236.71	\$ 7,417.62	\$ 7,603.06	\$ 7,793.14	\$ 7,987.97	\$ 8,187.67	\$ 8,392.36
LABOR	\$ 3,000.00	\$ 5,000.00	\$ 5,125.00	\$ 5,253.13	\$ 5,384.45	\$ 5,519.06	\$ 5,657.04	\$ 5,798.47	\$ 5,943.43	\$ 6,092.01	\$ 6,244.31
LABOR	\$ 115,000.00	\$ 147,213.00	\$ 150,893.33	\$ 154,665.66	\$ 158,532.30	\$ 162,495.61	\$ 166,558.00	\$ 170,721.95	\$ 174,990.64	\$ 179,364.75	\$ 183,848.86
LABOR	\$ 50,000.00	\$ 10,000.00	\$ 10,250.00	\$ 10,506.25	\$ 10,768.91	\$ 11,038.13	\$ 11,314.08	\$ 11,596.93	\$ 11,886.86	\$ 12,184.03	\$ 12,488.63
LABOR	\$ 10,000.00	\$ 6,578.00	\$ 6,742.45	\$ 6,911.01	\$ 7,083.79	\$ 7,260.88	\$ 7,442.40	\$ 7,628.46	\$ 7,819.17	\$ 8,014.65	\$ 8,215.02
MISCELLANEOUS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MISCELLANEOUS	\$ 40,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MISCELLANEOUS	\$ 3,100.00	\$ 5,000.00	\$ 5,125.00	\$ 5,253.13	\$ 5,384.45	\$ 5,519.06	\$ 5,657.04	\$ 5,798.47	\$ 5,943.43	\$ 6,092.01	\$ 6,244.31
MISCELLANEOUS	\$ -	\$ 500.00	\$ 512.50	\$ 525.31	\$ 538.45	\$ 551.91	\$ 565.70	\$ 579.85	\$ 594.34	\$ 609.20	\$ 624.43
MISCELLANEOUS	\$ 1,000.00	\$ 5,000.00	\$ 5,125.00	\$ 5,253.13	\$ 5,384.45	\$ 5,519.06	\$ 5,657.04	\$ 5,798.47	\$ 5,943.43	\$ 6,092.01	\$ 6,244.31
MISCELLANEOUS	\$ 1,500.00	\$ 6,500.00	\$ 6,662.50	\$ 6,829.06	\$ 6,999.79	\$ 7,174.78	\$ 7,354.15	\$ 7,538.01	\$ 7,726.46	\$ 7,919.62	\$ 8,117.61
MISCELLANEOUS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MISCELLANEOUS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MISCELLANEOUS	\$ 3,500.00	\$ 12,000.00	\$ 12,300.00	\$ 12,607.50	\$ 12,922.69	\$ 13,245.75	\$ 13,576.90	\$ 13,916.32	\$ 14,264.23	\$ 14,620.83	\$ 14,986.36
MISCELLANEOUS	\$ 6,000.00	\$ 20,000.00	\$ 20,500.00	\$ 21,012.50	\$ 21,537.81	\$ 22,076.26	\$ 22,628.16	\$ 23,193.87	\$ 23,773.72	\$ 24,368.06	\$ 24,977.26
RATE FUNDED CAPITAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
RATE FUNDED CAPITAL	\$ -	\$ 25,000.00	\$ 25,625.00	\$ 26,265.63	\$ 26,922.27	\$ 27,595.32	\$ 28,285.21	\$ 28,992.34	\$ 29,717.14	\$ 30,460.07	\$ 31,221.57
RATE FUNDED CAPITAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
RATE FUNDED CAPITAL	\$ 25,000.00	\$ 50,000.00	\$ 52,000.00	\$ 54,080.00	\$ 56,243.20	\$ 58,492.93	\$ 60,832.65	\$ 63,265.95	\$ 65,796.59	\$ 68,428.45	\$ 71,165.59
SUPPLIES	\$ 25,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SUPPLIES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SUPPLIES	\$ 175,000.00	\$ 200,000.00	\$ 205,000.00	\$ 210,125.00	\$ 215,378.13	\$ 220,762.58	\$ 226,281.64	\$ 231,938.68	\$ 237,737.15	\$ 243,680.58	\$ 249,772.59
SUPPLIES	\$ -	\$ 7,000.00	\$ 7,175.00	\$ 7,354.38	\$ 7,538.23	\$ 7,726.69	\$ 7,919.86	\$ 8,117.85	\$ 8,320.80	\$ 8,528.82	\$ 8,742.04
OPERATING EXPENSES & MAINTENANCE	\$ 45,000.00	\$ 40,000.00	\$ 41,000.00	\$ 42,025.00	\$ 43,075.63	\$ 44,152.52	\$ 45,256.33	\$ 46,387.74	\$ 47,547.43	\$ 48,736.12	\$ 49,954.52
OPERATING EXPENSES & MAINTENANCE	\$ 500.00	\$ 10,000.00	\$ 10,250.00	\$ 10,506.25	\$ 10,768.91	\$ 11,038.13	\$ 11,314.08	\$ 11,596.93	\$ 11,886.86	\$ 12,184.03	\$ 12,488.63
OPERATING EXPENSES & MAINTENANCE	\$ 90,000.00	\$ 110,000.00	\$ 112,750.00	\$ 115,568.75	\$ 118,457.97	\$ 121,419.42	\$ 124,454.90	\$ 127,566.28	\$ 130,755.43	\$ 134,024.32	\$ 137,374.93
OPERATING EXPENSES & MAINTENANCE	\$ 45,000.00	\$ 50,000.00	\$ 51,250.00	\$ 52,531.25	\$ 53,844.53	\$ 55,190.64	\$ 56,570.41	\$ 57,984.67	\$ 59,434.29	\$ 60,920.14	\$ 62,443.15
OPERATING EXPENSES & MAINTENANCE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OPERATING EXPENSES & MAINTENANCE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OPERATING EXPENSES & MAINTENANCE	\$ 500.00	\$ 250.00	\$ 256.25	\$ 262.66	\$ 269.22	\$ 275.95	\$ 282.85	\$ 289.92	\$ 297.17	\$ 304.60	\$ 312.22
OPERATING EXPENSES & MAINTENANCE	\$ 410.00	\$ 1,000.00	\$ 1,025.00	\$ 1,050.63	\$ 1,076.89	\$ 1,103.81	\$ 1,131.41	\$ 1,159.69	\$ 1,188.69	\$ 1,218.40	\$ 1,248.86
OPERATING EXPENSES & MAINTENANCE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OPERATING EXPENSES & MAINTENANCE	\$ 5,330.00	\$ 5,000.00	\$ 5,125.00	\$ 5,253.13	\$ 5,384.45	\$ 5,519.06	\$ 5,657.04	\$ 5,798.47	\$ 5,943.43	\$ 6,092.01	\$ 6,244.31
OPERATING EXPENSES & MAINTENANCE	\$ 15,375.00	\$ 15,000.00	\$ 15,375.00	\$ 15,759.38	\$ 16,153.36	\$ 16,557.19	\$ 16,971.12	\$ 17,385.00	\$ 17,830.29	\$ 18,276.04	\$ 18,732.94
INDIRECTS	\$ 1,042,000.00	\$ 1,024,337.00	\$ 1,049,945.43	\$ 1,076,194.06	\$ 1,103,098.91	\$ 1,130,676.38	\$ 1,158,943.29	\$ 1,187,916.88	\$ 1,217,614.80	\$ 1,248,055.17	\$ 1,279,256.55
Grand Total	\$ 5,330.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
\$	\$ 992,097.50	\$ 1,068,502.00	\$ 1,095,214.55	\$ 1,122,594.91	\$ 1,150,659.79	\$ 1,179,426.28	\$ 1,208,911.94	\$ 1,239,134.74	\$ 1,270,113.11	\$ 1,301,865.93	\$ 1,334,412.58
Total	\$ 3,001,142.50	\$ 3,161,341.00	\$ 3,239,587.03	\$ 3,321,356.70	\$ 3,405,201.82	\$ 3,491,175.51	\$ 3,579,332.29	\$ 3,669,728.09	\$ 3,760,420.28	\$ 3,857,467.74	\$ 3,954,930.86

Utility	Water																			
Account Type	Revenue																			
		Historic Revenue					Revenue Analysis					Projected Revenue								
Sum of YTD Revenue Receipts		Year	FY13	FY14	FY15	FY16	FY17	Period Average	Trends	Start Value	Delta	Escalator	FY18	FY19	FY20	FY21	FY22	FY23	FY24	
Category																				
NON RATE REVENUE	Water Misc Revenue	\$	610.02	\$ 3,152.63	\$ 1,759.78	\$ 179.10	\$ 393.47	\$ 1,219.00		\$ 500.00		0%	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	\$ 500.00	
NON RATE REVENUE	Water Penalties & Interest On Taxes	\$	14,992.33	\$ 11,200.53	\$ 2,482.05	\$ 10,369.23	\$ 9,234.12	\$ 9,655.65		\$ 10,000.00		0%	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	
NON RATE REVENUE	Water Utility Final Fee Charges 2016						\$ 800.00	\$ 800.00		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility Final Fee Charges 2017						\$ 7,850.00	\$ 7,850.00		\$ 7,500.00		0%	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	\$ 7,500.00	
NON RATE REVENUE	Water Utility Non-Usage Charges 2012	\$	435.00	\$ -	\$ -	\$ -		\$ 435.00		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility Non-Usage Charges 2013	\$	6,378.85	\$ 350.00	\$ -	\$ 125.00		\$ 2,284.62		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility Non-Usage Charges 2014	\$	-	\$ 7,450.00	\$ 250.00	\$ -		\$ 3,850.00		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility Non-Usage Charges 2015	\$	-	\$ -	\$ 6,050.00	\$ 300.00		\$ 3,175.00		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility Non-Usage Charges 2016	\$	-	\$ -	\$ -	\$ 7,900.00		\$ 7,900.00				0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility System Development	\$	77,400.00	\$ 130,000.00	\$ 100,000.00	\$ 80,000.00	\$ 234,400.00	\$ 124,360.00		\$ 125,000.00		0%	\$ 125,000.00	\$ 125,000.00	\$ 125,000.00	\$ 125,000.00	\$ 125,000.00	\$ 125,000.00	\$ 125,000.00	
NON RATE REVENUE	Water Utility Work Service 2016					\$ 2,167.99		\$ -		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
NON RATE REVENUE	Water Utility Work Service 2017					\$ 18,766.40		\$ 18,766.40		\$ 18,000.00		0%	\$ 18,000.00	\$ 18,000.00	\$ 18,000.00	\$ 18,000.00	\$ 18,000.00	\$ 18,000.00	\$ 18,000.00	
NON RATE REVENUE Total		\$	135,292.49	\$ 228,029.93	\$ 215,153.44	\$ 223,025.16	\$ 374,690.04	\$ 235,238.21		\$ -		0%								
RATE REVENUE	Water Utility Usage Charges 2012	\$	55,098.39	\$ 116.36	\$ -	\$ -		\$ 27,607.38		\$ -		0%								
RATE REVENUE	Water Utility Usage Charges 2013	\$	759,439.44	\$ 36,035.36	\$ 84.30	\$ -		\$ 265,186.37		\$ -		0%								
RATE REVENUE	Water Utility Usage Charges 2014	\$	-	\$ 739,326.41	\$ 27,007.84	\$ -		\$ 383,167.13		\$ -		0%								
RATE REVENUE	Water Utility Usage Charges 2015	\$	-	\$ -	\$ 767,336.29	\$ 29,277.14		\$ 398,306.72		\$ -		0%								
RATE REVENUE	Water Utility Usage Charges 2016	\$	-	\$ -	\$ -	\$ 823,061.92	\$ 25,323.48	\$ 424,192.70		\$ -		0%								
RATE REVENUE	Water Utility Usage Charges 2017	\$	-	\$ -	\$ -	\$ -	\$ 776,275.92	\$ 776,275.92		\$ -		0%								
RATE REVENUE Total		\$	814,537.83	\$ 775,478.13	\$ 794,428.43	\$ 852,339.06	\$ 801,599.40	\$ 807,676.57		\$ -		0%								
Capital Improvement (CIF)	Water Utility Capital Improvement 2011	\$	10.52	\$ -	\$ -	\$ -		\$ 10.52		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF)	Water Utility Capital Improvement 2012	\$	72,723.73	\$ 691.55	\$ -	\$ -		\$ 36,707.64		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF)	Water Utility Capital Improvement 2013	\$	669,725.85	\$ 37,844.70	\$ 150.81	\$ -		\$ 235,907.12		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF)	Water Utility Capital Improvement 2014	\$	-	\$ 640,808.19	\$ 28,207.19	\$ 5.17		\$ 223,006.85		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF)	Water Utility Capital Improvement 2015	\$	-	\$ -	\$ 644,695.67	\$ 29,950.08	\$ 3.87	\$ 224,883.21		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF)	Water Utility Capital Improvement 2016	\$	-	\$ -	\$ 993.26	\$ 662,511.34	\$ 27,569.13	\$ 230,357.91		\$ -		0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF)	Water Utility Capital Improvement 2017	\$	-	\$ -	\$ -	\$ 1,011.20	\$ 664,858.25	\$ 332,934.73				0%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Capital Improvement (CIF) Total		\$	742,460.10	\$ 679,344.44	\$ 674,046.93	\$ 693,477.79	\$ 692,431.25													
Grand Total		\$	1,692,290.42	\$ 1,682,852.50	\$ 1,683,628.80	\$ 1,768,842.01	\$ 1,868,720.69													
														\$ 161,000.00	\$ 161,000.00	\$ 161,000.00	\$ 161,000.00	\$ 161,000.00	\$ 161,000.00	\$ 161,000.00

Revenue Analysis - Previous Year Revenue										
Account/ Description	FY13	As % of FY13	FY14	As % of FY14	FY15	As % of FY15	FY16	As % of FY16	FY17	As % of FY17
Water Utility Usage Charges 2012 \$	55,098.39	7.26%	\$ 116.36	0.02%		0.00%		0.00%		0.00%
Water Utility Usage Charges 2013		0.00%	\$ 36,035.36	4.87%	\$ 84.30	0.01%		0.00%		0.00%
Water Utility Usage Charges 2014 \$	-	0.00%		0.00%	\$ 27,007.84	3.52%		0.00%		0.00%
Water Utility Usage Charges 2015 \$	-	0.00%	\$ -	0.00%		0.00%	\$ 29,277.14	3.56%		0.00%
Water Utility Usage Charges 2016 \$	-	0.00%	\$ -	0.00%	\$ -	0.00%		0.00%	\$ 25,323.48	3.26%
Water Utility Usage Liens 2013 \$	16,637.89	2.19%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%		0.00%
Water Utility Usage Liens 2014 \$	-	0.00%	\$ 54,005.56	7.30%	\$ 7.12	0.00%	\$ -	0.00%		0.00%
Water Utility Usage Liens 2015 \$	-	0.00%	\$ -	0.00%	\$ 85,223.96	11.11%	\$ 344.74	0.04%		0.00%
Water Utility Usage Liens 2016 \$	-	0.00%	\$ -	0.00%	\$ -	0.00%	\$ 100,862.37	12.25%		0.00%
Water Utility Usage Liens 2017 \$	-	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ 101,078.06	13.02%
Current year rate revenue / Tota \$	759,439.44	9.45%	\$ 739,326.41	12.19%	\$ 767,336.29	14.64%	\$ 823,061.92	15.85%	\$ 776,275.92	16.28%

Average % previous year revenue:	13.68%
----------------------------------	--------

Rate Revenue

Current Rate Structure and Rates Do Nothing														
Category	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY27	FY28	
5/8"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3/4"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
1.5"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Tier 1	Quarterly Fee	\$240,361	\$245,732	\$265,203	\$266,529	\$267,862	\$269,201	\$270,547	\$271,900	\$273,259	\$274,626	\$277,379	\$278,766	
Tier 2	Usage	\$302,032	\$302,025	\$332,131	\$332,131	\$332,131	\$332,131	\$332,131	\$332,131	\$332,131	\$332,131	\$332,131	\$332,131	
Tier 3	Usage	\$196,775	\$182,651	\$202,518	\$202,518	\$202,518	\$202,518	\$202,518	\$202,518	\$202,518	\$202,518	\$202,518	\$202,518	
Irrigation	Usage	\$164,984	\$126,784	\$171,533	\$171,533	\$171,533	\$171,533	\$171,533	\$171,533	\$171,533	\$171,533	\$171,533	\$171,533	
Total		\$904,152	\$857,193	\$971,386	\$972,712	\$974,044	\$975,384	\$976,730	\$978,082	\$979,442	\$980,808	\$983,561	\$984,948	

Recommended Rate Structure and Required Rate Increases														
Category	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY27	FY28	
5/8"	Quarterly Fee	\$0	\$0	\$0	\$331,148	\$432,644	\$460,896	\$463,200	\$465,516	\$467,844	\$470,183	\$474,897	\$477,271	
3/4"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1"	Quarterly Fee	\$0	\$0	\$0	\$7,538	\$9,848	\$10,491	\$10,543	\$10,596	\$10,649	\$10,702	\$10,809	\$10,864	
1.5"	Quarterly Fee	\$0	\$0	\$0	\$3,015	\$3,939	\$4,196	\$4,217	\$4,238	\$4,260	\$4,281	\$4,324	\$4,345	
2"	Quarterly Fee	\$0	\$0	\$0	\$16,884	\$22,059	\$23,499	\$23,617	\$23,735	\$23,854	\$23,973	\$24,213	\$24,334	
3"	Quarterly Fee	\$0	\$0	\$0	\$7,538	\$9,848	\$10,491	\$10,543	\$10,596	\$10,649	\$10,702	\$10,809	\$10,864	
4"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
6"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Tier 1	Quarterly Fee	\$240,361	\$245,732	\$265,203	\$274,084	\$356,309	\$377,687	\$377,687	\$377,687	\$377,687	\$377,687	\$377,687	\$377,687	
Tier 2	Usage	\$302,032	\$302,025	\$332,131	\$664,262	\$863,541	\$915,354	\$915,354	\$915,354	\$915,354	\$915,354	\$915,354	\$915,354	
Tier 3	Usage	\$196,775	\$182,651	\$202,518	\$405,036	\$526,547	\$558,140	\$558,140	\$558,140	\$558,140	\$558,140	\$558,140	\$558,140	
Irrigation	Usage	\$164,984	\$126,784	\$171,533	\$343,067	\$445,987	\$472,746	\$472,746	\$472,746	\$472,746	\$472,746	\$472,746	\$472,746	
Total		\$904,152	\$857,193	\$971,386	\$2,052,571	\$2,670,722	\$2,833,500	\$2,836,048	\$2,838,609	\$2,841,182	\$2,843,769	\$2,848,980	\$2,851,605	

Current Rate Structure with Required Rate Increases														
Category	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY27	FY28	
5/8"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3/4"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
1.5"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
2"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
3"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
4"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
6"	Quarterly Fee	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	
Tier 1	Quarterly Fee	\$245,732	\$245,732	\$265,203	\$319,835	\$353,577	\$355,345	\$410,690	\$412,744	\$414,807	\$416,882	\$421,061	\$423,166	
Tier 2	Usage	\$311,081	\$302,025	\$332,131	\$398,557	\$438,413	\$504,175	\$504,175	\$504,175	\$504,175	\$504,175	\$504,175	\$504,175	
Tier 3	Usage	\$201,834	\$182,651	\$202,518	\$243,022	\$267,324	\$267,324	\$307,423	\$307,423	\$307,423	\$307,423	\$307,423	\$307,423	
Irrigation	Usage	\$168,594	\$126,784	\$171,533	\$205,840	\$226,424	\$226,424	\$260,388	\$260,388	\$260,388	\$260,388	\$260,388	\$260,388	
Total		\$927,242	\$857,193	\$971,386	\$1,167,254	\$1,285,739	\$1,287,507	\$1,482,676	\$1,484,729	\$1,486,793	\$1,488,867	\$1,493,046	\$1,495,151	

Revenue Calibration				
Year	Commitments	Model	Delta (total)	Delta(%)
FY 2016	\$899,498.75	\$904,152.44	\$4,653.69	0.51%
FY 2017	\$853,650.79	\$857,192.93	\$3,542.14	0.41%

Collection Ratio					
Year	Collected	Model	Delta (total)	Delta (%)	Collection Ratio
FY 2016	\$823,061.92	\$904,152.44	\$81,090.52	-9.85%	91.03%
FY 2017	\$776,275.92	\$857,192.93	\$80,917.01	-10.42%	90.56%

Current Rate Structure and Rates Do Nothing														
Description	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
5/8"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3/4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1.5"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tier 1	Quarterly Fee	\$17.90	\$18.30	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75	\$19.75
Tier 2	Usage	\$2.67	\$2.75	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99	\$2.99
Tier 3	Usage	\$3.89	\$3.99	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35	\$4.35
Irrigation	Usage	\$4.57	\$4.67	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10	\$5.10

Recommended Rate Structure and Required Rate Increases														
Description	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
5/8"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$25.00	\$32.50	\$34.45	\$34.45	\$34.45	\$34.45	\$34.45	\$34.45	\$34.45	\$34.45
3/4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$37.50	\$48.75	\$51.68	\$51.68	\$51.68	\$51.68	\$51.68	\$51.68	\$51.68	\$51.68
1"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$62.50	\$81.25	\$86.13	\$86.13	\$86.13	\$86.13	\$86.13	\$86.13	\$86.13	\$86.13
1.5"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$125.00	\$162.50	\$172.25	\$172.25	\$172.25	\$172.25	\$172.25	\$172.25	\$172.25	\$172.25
2"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$200.00	\$260.00	\$275.60	\$275.60	\$275.60	\$275.60	\$275.60	\$275.60	\$275.60	\$275.60
3"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$375.00	\$487.50	\$516.75	\$516.75	\$516.75	\$516.75	\$516.75	\$516.75	\$516.75	\$516.75
4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$625.00	\$812.50	\$861.25	\$861.25	\$861.25	\$861.25	\$861.25	\$861.25	\$861.25	\$861.25
6"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$1,250.00	\$1,625.00	\$1,722.50	\$1,722.50	\$1,722.50	\$1,722.50	\$1,722.50	\$1,722.50	\$1,722.50	\$1,722.50
Tier 1	Quarterly Fee	\$17.90	\$18.30	\$19.75	\$2.86	\$3.72	\$3.94	\$3.94	\$3.94	\$3.94	\$3.94	\$3.94	\$3.94	\$3.94
Tier 2	Usage	\$2.67	\$2.75	\$2.99	\$5.98	\$7.77	\$8.24	\$8.24	\$8.24	\$8.24	\$8.24	\$8.24	\$8.24	\$8.24
Tier 3	Usage	\$3.89	\$3.99	\$4.35	\$8.70	\$11.31	\$11.99	\$11.99	\$11.99	\$11.99	\$11.99	\$11.99	\$11.99	\$11.99
Irrigation	Usage	\$4.57	\$4.67	\$5.10	\$10.20	\$13.26	\$14.06	\$14.06	\$14.06	\$14.06	\$14.06	\$14.06	\$14.06	\$14.06

Current Rate Structure with Required Rate Increases														
Description	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
5/8"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3/4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1.5"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Tier 1	Quarterly Fee	\$18.30	\$18.30	\$19.75	\$23.70	\$26.07	\$26.07	\$29.98	\$29.98	\$29.98	\$29.98	\$29.98	\$29.98	\$29.98
Tier 2	Usage	\$2.75	\$2.75	\$2.99	\$3.59	\$3.95	\$3.95	\$4.54	\$4.54	\$4.54	\$4.54	\$4.54	\$4.54	\$4.54
Tier 3	Usage	\$3.99	\$3.99	\$4.35	\$5.22	\$5.74	\$5.74	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60
Irrigation	Usage	\$4.67	\$4.67	\$5.10	\$6.12	\$6.73	\$6.73	\$7.74	\$7.74	\$7.74	\$7.74	\$7.74	\$7.74	\$7.74

CIP

Inflation factor

Capital Improvement Planner

Project	Description	Funding source	Interest rate	Estimated Cost	Cost Year	Debt year	Spread	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
3	Phase I-2-Mendon Street (Route 16)	Debt	4.5%	\$1,347,000	2017	2020	1	\$0	\$30,760	\$87,737	\$79,163	\$79,048	\$78,933	\$78,818	\$78,702	\$78,587	\$78,472	\$78,357
5	Phase I-3-High Street and connection to Douglas Street	Debt	4.5%	\$2,273,000	2017	2020	1	\$0	\$51,880	\$147,978	\$133,517	\$133,323	\$133,129	\$132,934	\$132,740	\$132,546	\$132,351	\$132,157
8	Phase II-5-Hartford Avenue East	Debt	4.5%	\$831,150	2017	2021	1	\$0	\$0	\$19,840	\$56,590	\$51,060	\$50,985	\$50,911	\$50,837	\$50,763	\$50,688	\$50,614
48	Water Well Rehabilitation	Rate	0.0%	\$1,250,000	2017	2020	5	\$0	\$0	\$285,400	\$285,400	\$285,400	\$285,400	\$285,400	\$0	\$0	\$0	\$0
49	Well Rehabilitation/New Source Development Study	Rate	0.0%	\$50,000	2017	2019	1	\$0	\$55,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
50	Oak & Granite Street Water Main Replacement	Debt	4.5%	\$1,375,000	2017	2022	1	\$0	\$0	\$0	\$34,280	\$97,998	\$88,443	\$88,315	\$88,187	\$88,058	\$87,930	\$87,802
51	West River Water Main Reconnection	Rate	0.0%	\$436,300	2017	2019	1	\$0	\$477,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
52	East Street Water System Improvements	Debt	4.5%	\$3,200,000	2017	2023	1	\$0	\$0	\$0	\$0	\$83,360	\$238,305	\$215,070	\$214,758	\$214,447	\$214,135	\$213,823
53	Blackstone Well Field Roofs	Rate	0.0%	\$60,000	2017	2020	1	\$0	\$0	\$69,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
54	Disposal/Septic System	Rate	0.0%	\$40,000	2017	2019	1	\$0	\$44,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
55	Dump Truck	Debt	6.0%	\$150,000	2017	2020	1	\$0	\$3,440	\$35,622	\$34,625	\$34,573	\$34,521	\$34,470	\$0	\$0	\$0	\$0
56	Backhoe	Debt	6.0%	\$170,000	2017	2020	1	\$0	\$3,880	\$40,178	\$39,053	\$38,995	\$38,937	\$38,879	\$0	\$0	\$0	\$0
57	Water Division Overall Master Plan	Rate	0.0%	\$50,000	2017	2019	1	\$0	\$55,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

## **APPENDIX B – SEWER RATE MODEL**

Sewer Utility Rate Dashboard

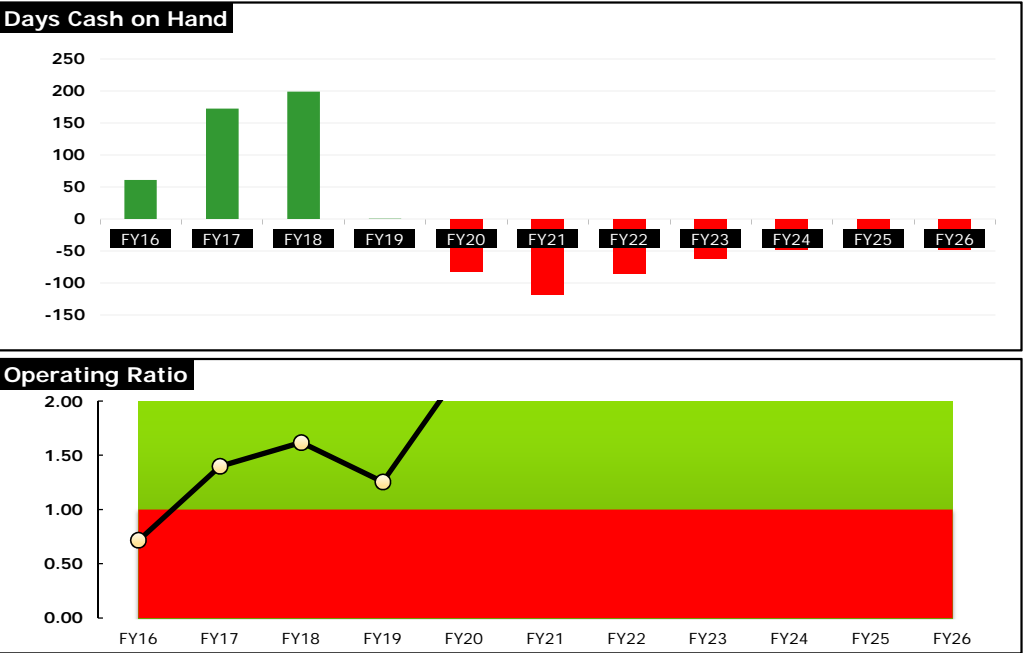
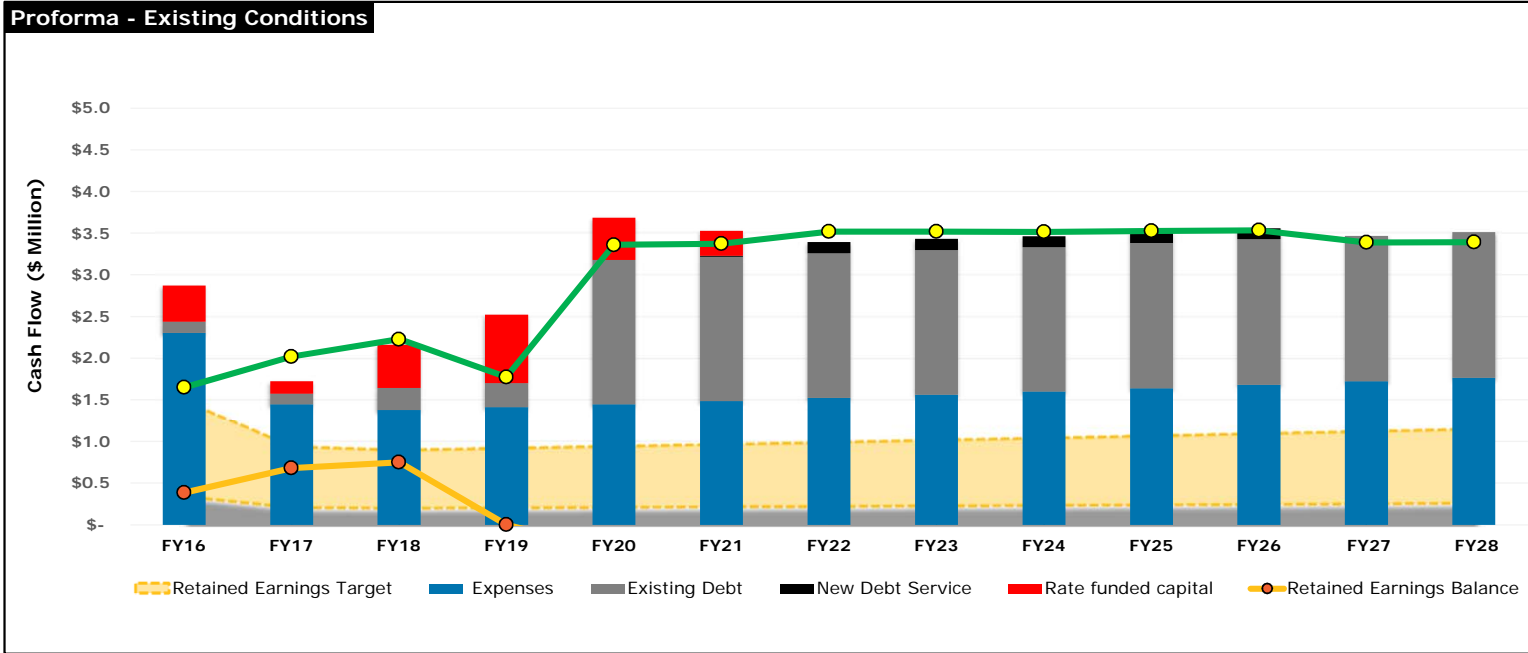
Uxbridge

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Expenses													
Labor	\$626,271	\$518,645	\$538,600	\$552,259	\$566,266	\$580,632	\$595,366	\$610,476	\$625,973	\$641,868	\$658,169	\$674,888	\$692,036
Technical Services	\$881,470	\$186,070	\$1,200	\$1,230	\$1,261	\$1,292	\$1,325	\$1,358	\$1,392	\$1,426	\$1,462	\$1,499	\$1,536
Operating Expenses & Maintenance	\$270,336	\$180,928	\$239,500	\$245,488	\$251,625	\$257,915	\$264,363	\$270,972	\$277,747	\$284,690	\$291,807	\$299,103	\$306,580
Supplies	\$0	\$140,535	\$145,000	\$148,625	\$152,341	\$156,149	\$160,053	\$164,054	\$168,156	\$172,359	\$176,668	\$181,085	\$185,612
Indirect	\$314,350	\$196,530	\$228,226	\$233,932	\$239,780	\$245,775	\$251,919	\$258,217	\$264,672	\$271,289	\$278,071	\$285,023	\$292,149
Miscellaneous	\$209,860	\$221,095	\$224,350	\$229,959	\$235,708	\$241,600	\$247,640	\$253,831	\$260,177	\$266,682	\$273,349	\$280,182	\$287,187
Subtotal	\$2,302,288	\$1,443,802	\$1,376,876	\$1,411,492	\$1,446,980	\$1,483,364	\$1,520,666	\$1,558,909	\$1,598,117	\$1,638,315	\$1,679,527	\$1,721,780	\$1,765,100
				\$ 859,233									
CIP/ Debt													
Rate funded capital	\$432,259	\$151,338	\$520,000	\$820,000	\$507,000	\$300,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Existing Debt	\$135,050	\$127,721	\$262,746	\$289,233	\$1,732,798	\$1,731,726	\$1,736,765	\$1,738,491	\$1,733,485	\$1,744,494	\$1,747,494	\$1,744,782	\$1,747,932
New Debt Service	\$0	\$0	\$0	\$0	\$0	\$12,480	\$136,000	\$132,385	\$132,199	\$132,009	\$131,815	\$0	\$0
Subtotal	\$567,309	\$279,059	\$782,746	\$1,109,233	\$2,239,798	\$2,044,206	\$1,872,765	\$1,870,876	\$1,865,684	\$1,876,503	\$1,879,309	\$1,744,782	\$1,747,932
TOTAL EXPENSES	\$2,869,597	\$1,722,861	\$2,159,622	\$2,520,724	\$3,686,778	\$3,527,570	\$3,393,431	\$3,429,785	\$3,463,801	\$3,514,818	\$3,558,837	\$3,466,562	\$3,513,032
Delta Previous		-\$1,146,736	\$436,761	\$361,102	\$1,166,054	-\$159,209							

Current Rate Structure and Rates  
Do Nothing

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Revenue - Existing	Rate Increase												
Rate Revenue	\$ 1,001,129	\$ 1,054,430	\$ 1,106,447	\$ 1,114,603	\$ 1,116,620	\$ 1,118,646	\$ 1,120,683	\$ 1,122,729	\$ 1,124,786	\$ 1,126,854	\$ 1,128,931	\$ 1,131,019	\$ 1,133,118
Non-Rate Revenue	\$ 489,968	\$ 517,282	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500
Capital Improvement (CIF)	\$ 157,450	\$ 447,119	\$ 782,746	\$ 318,156	\$ 1,906,078	\$ 1,918,626	\$ 2,060,041	\$ 2,057,963	\$ 2,052,253	\$ 2,064,154	\$ 2,067,240	\$ 1,919,260	\$ 1,922,725
TOTAL REVENUE	\$ 1,648,546	\$ 2,018,831	\$ 2,227,692	\$ 1,771,259	\$ 3,361,198	\$ 3,375,772	\$ 3,519,224	\$ 3,519,193	\$ 3,515,539	\$ 3,529,507	\$ 3,534,672	\$ 3,388,779	\$ 3,394,343
delta previous	\$ 35,083	\$ (370,284)	\$ 52,017	\$ 8,156	\$ 2,016	\$ 2,026	\$ 2,037	\$ 2,047	\$ 2,057	\$ 2,067	\$ 2,078	\$ 2,088	\$ 2,098
Net Revenue (Revenue-Expense)	\$ (1,221,051)	\$ 295,970	\$ 68,071	\$ (749,465)	\$ (325,581)	\$ (151,797)	\$ 125,793	\$ 89,408	\$ 51,738	\$ 14,689	\$ (24,165)	\$ (77,783)	\$ (118,689)
Retained Earnings Balance	\$386,614	\$682,584	\$750,654	\$1,189	-\$324,392	-\$476,189	-\$350,396	-\$260,988	-\$209,250	-\$194,561	-\$218,726	-\$296,508	-\$415,197
Retained Earnings as Percent of Operating Expenses	17%	47%	55%	0%	-22%	-32%	-23%	-17%	-13%	-12%	-13%	-17%	-24%

Source: 20

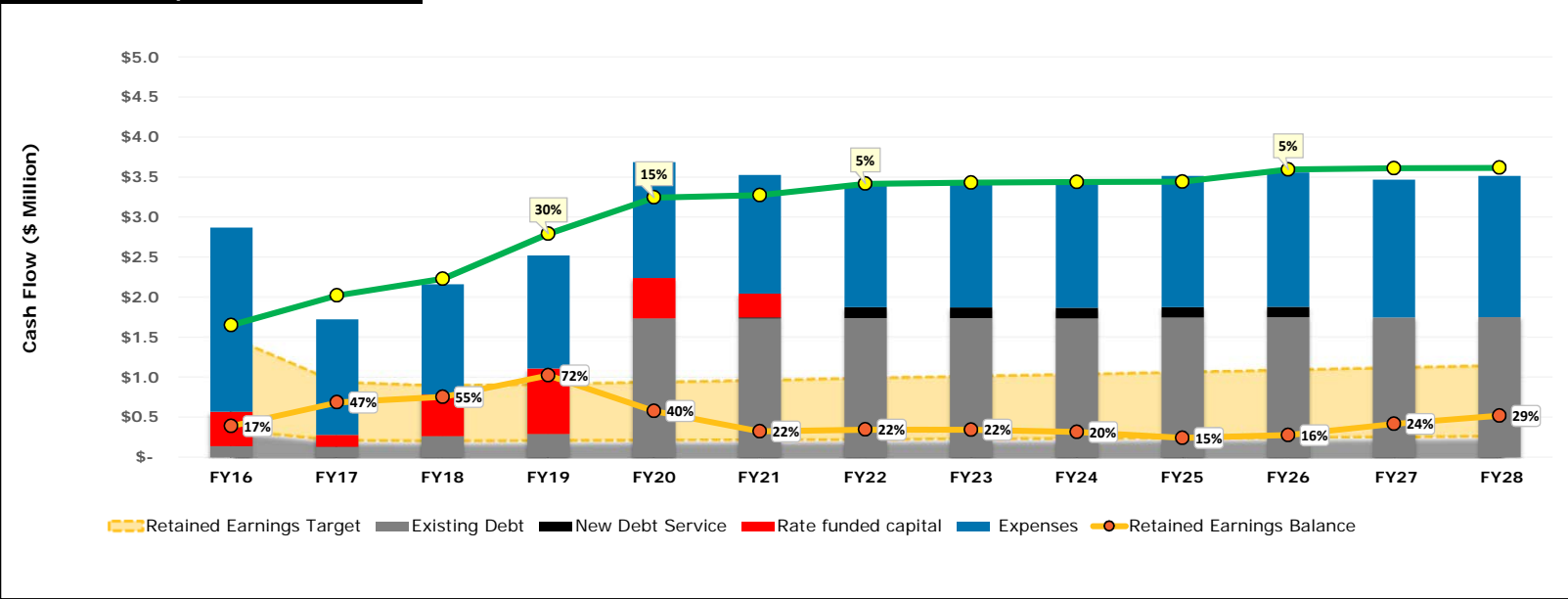


Customer Impacts (Annual)							
Scenario	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Total Cost	\$ 794.18	\$ 828.83	\$ 1,113.46	\$ 1,174.22	\$ 1,174.22	\$ 1,213.80	\$ 6,299
Cost Increase	\$ 34.65	\$ 284.63	\$ 60.76	\$ -	\$ 39.58		

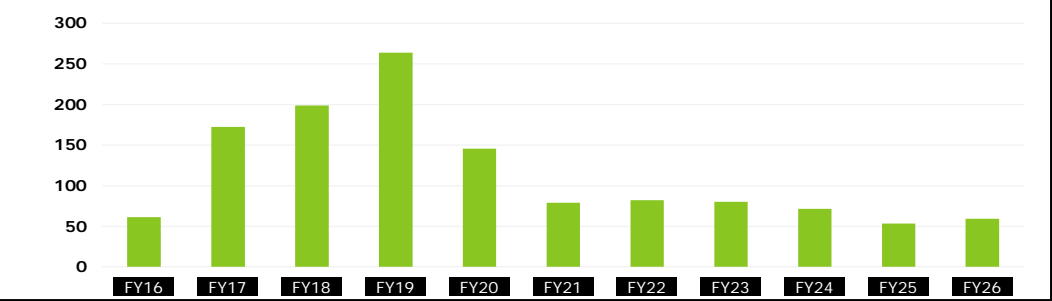
Recommended Rate Structure and Required Rate Increases

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Revenue				128%	15%		5%				5%		
Rate Revenue	\$ 1,001,129	\$ 1,054,430	\$ 1,106,447	\$ 2,452,483	\$ 2,904,004	\$ 2,933,090	\$ 3,076,205	\$ 3,090,986	\$ 3,096,649	\$ 3,102,341	\$ 3,253,790	\$ 3,269,499	\$ 3,275,566
Non-Rate Revenue	\$ 489,968	\$ 517,282	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500
Capital Improvement (CIF)	\$ 157,450	\$ 447,119	\$ 782,746										
Total Revenue	\$ 1,648,546	\$ 2,018,831	\$ 2,227,692	\$ 2,790,983	\$ 3,242,504	\$ 3,271,590	\$ 3,414,705	\$ 3,429,486	\$ 3,435,149	\$ 3,440,841	\$ 3,592,290	\$ 3,607,999	\$ 3,614,066
delta previous			\$ 52,017	\$ 1,346,036	\$ 451,521	\$ 29,086	\$ 143,116	\$ 14,781	\$ 5,663	\$ 5,691	\$ 151,449	\$ 15,709	\$ 6,066
Effective rate increase				30%	15%		5%				5%		
			\$ 1,889,192										
Net Revenue (Revenue-Expense)	\$ (1,221,051)	\$ 295,970	\$ 68,071	\$ 270,259	\$ (444,274)	\$ (255,980)	\$ 21,275	\$ (299)	\$ (28,652)	\$ (73,977)	\$ 33,453	\$ 141,438	\$ 101,034
Retained Earnings Balance	\$386,614	\$682,584	\$750,654	\$1,020,913	\$576,638	\$320,659	\$341,933	\$341,635	\$312,983	\$239,005	\$272,459	\$413,896	\$514,930
Retained Earnings as Percent of Operating Expenses	17%	47%	55%	72%	40%	22%	22%	22%	20%	15%	16%	24%	29%

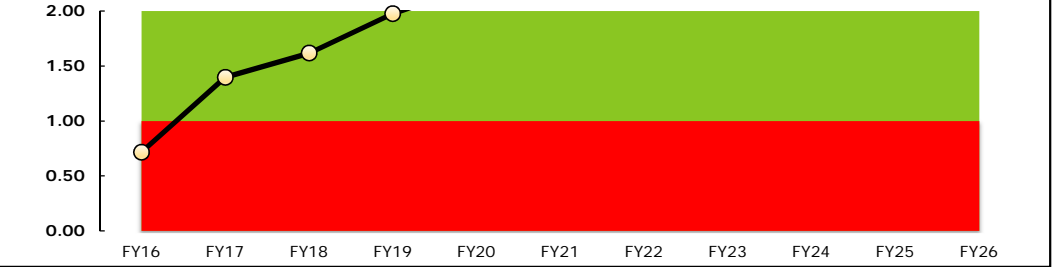
Proforma - Proposed Rate Structure



Days Cash on Hand



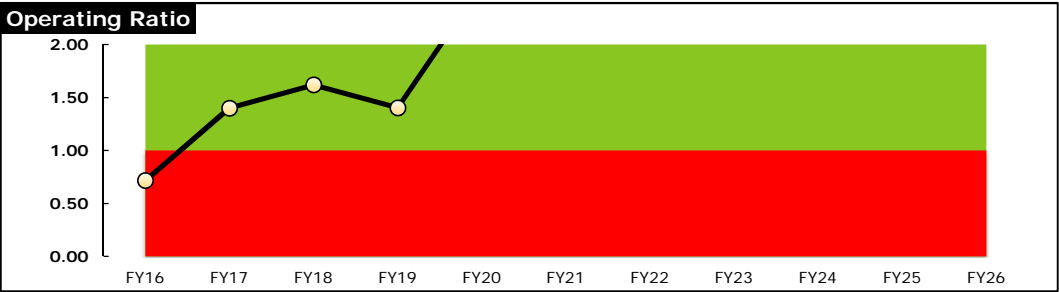
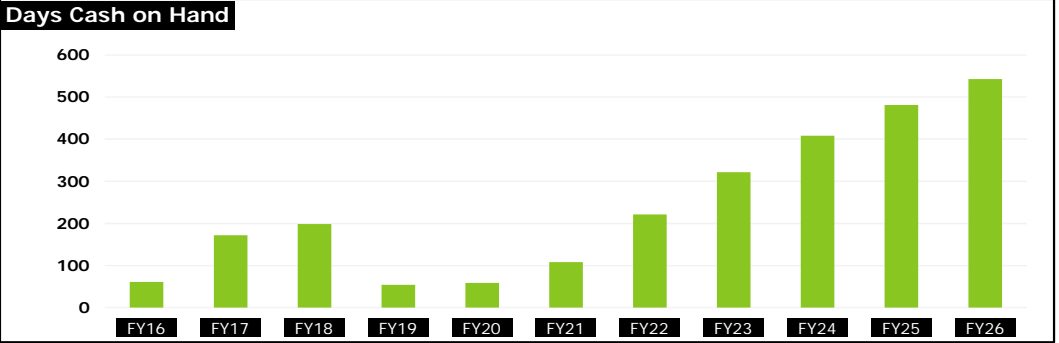
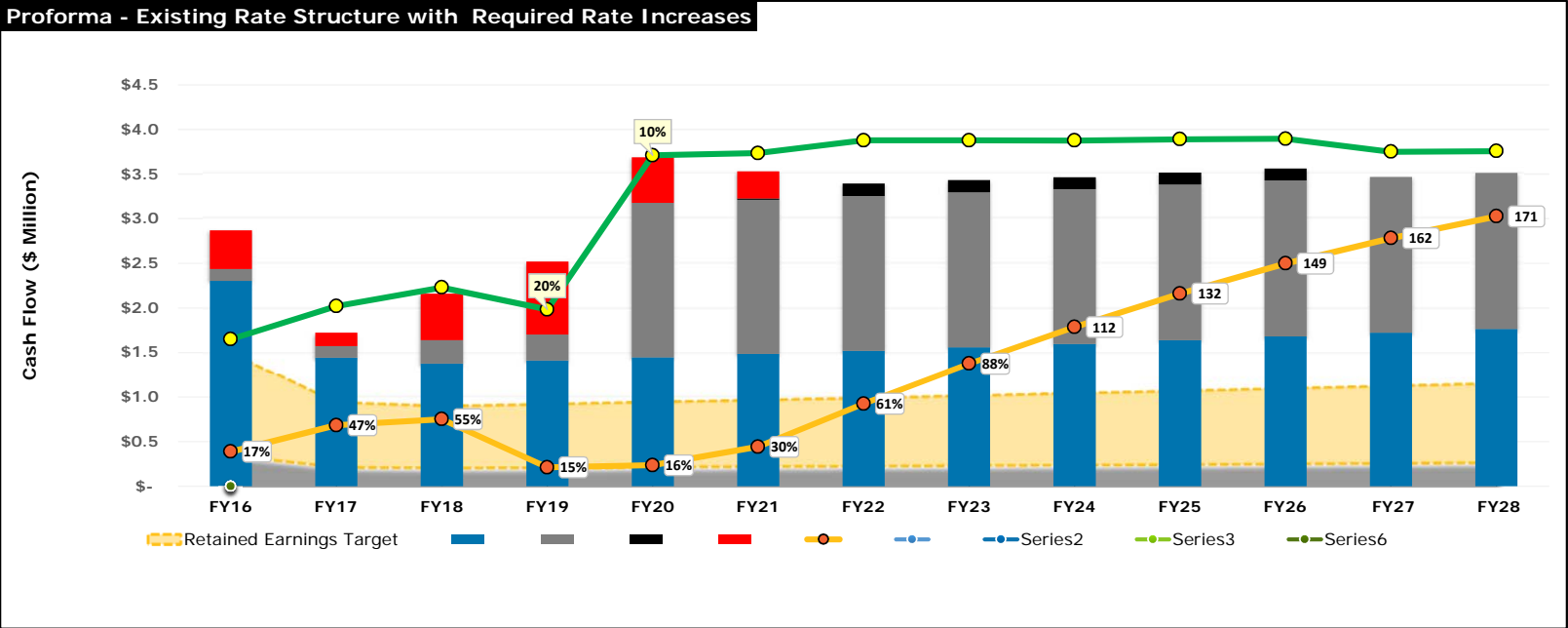
Operating Ratio



Customer Impacts (Annual)							
Scenario	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Total Cost	\$ 465.75	\$ 828.83	\$ 1,086.72	\$ 1,249.72	\$ 1,249.72	\$ 1,312.21	\$ 6,193
Cost Increase	\$ 363.08	\$ 257.89	\$ 163.01	\$ -	\$ 62.49		

	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
Revenue - Alt. B				20%	10%								
Rate Revenue	\$ 1,001,129	\$ 1,054,430	\$ 1,106,447	\$ 1,323,647	\$ 1,465,597	\$ 1,476,613	\$ 1,479,301	\$ 1,482,003	\$ 1,484,718	\$ 1,487,447	\$ 1,490,189	\$ 1,492,945	\$ 1,495,715
Non-Rate Revenue	\$ 489,968	\$ 517,282	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500	\$ 338,500
Capital Improvement (CIF)	\$ 157,450	\$ 447,119	\$ 782,746	\$ 318,156	\$ 1,906,078	\$ 1,918,626	\$ 2,060,041	\$ 2,057,963	\$ 2,052,253	\$ 2,064,154	\$ 2,067,240	\$ 1,919,260	\$ 1,922,725
Total Revenue	\$ 1,648,546	\$ 2,018,831	\$ 2,227,692	\$ 1,980,303	\$ 3,710,175	\$ 3,733,739	\$ 3,877,842	\$ 3,878,466	\$ 3,875,470	\$ 3,890,101	\$ 3,895,930	\$ 3,750,705	\$ 3,756,940
delta previous			\$ 52,017	\$ 217,200	\$ 141,950	\$ 11,016	\$ 2,688	\$ 2,702	\$ 2,715	\$ 2,729	\$ 2,742	\$ 2,756	\$ 2,770
Net Revenue (Revenue-Expense)	\$ (1,221,051)	\$ 295,970	\$ 68,071	\$ (540,421)	\$ 23,396	\$ 206,169	\$ 484,412	\$ 448,682	\$ 411,669	\$ 375,282	\$ 337,093	\$ 284,143	\$ 243,908
Retained Earnings Balance	\$386,614	\$682,584	\$750,654	\$210,233	\$233,629	\$439,798	\$924,210	\$1,372,892	\$1,784,561	\$2,159,844	\$2,496,937	\$2,781,080	\$3,024,988
Retained Earnings as Percent of Operating Expenses	17%	47%	55%	15%	16%	30%	61%	88%	112%	132%	149%	162%	171%

Current Rate Structure  
with Required Rate Increase



Customer Impacts (Annual)							
Scenario	FY17	FY18	FY19	FY20	FY21	FY22	TOTAL
Total Cost	\$ 794.18	\$ -	\$ 1,113.46	\$ 1,174.22	\$ 1,174.22	\$ 1,213.80	\$ 5,470
Cost Increase	\$ (794.18)	\$ 1,113.46	\$ 60.76	\$ -	\$ 39.58		

Utility

Account Type

Sewer

Expense

Sum of YTD Actual Expended Category		Year				
		FY13	FY14	FY15	FY16	FY17
LABOR	Sewer Admin & Office Supplies					\$2,052
LABOR	Sewer Administrative Salaries	\$ -	\$ -	\$ 36,262	\$ 31,581	\$26,697
LABOR	Sewer Other Earnings	\$ -	\$ -	\$ 7,559	\$ -	
LABOR	Sewer Other Regular Salaries	\$ -	\$ -	\$ 263,095	\$ 265,395	\$276,209
LABOR	Sewer Overtime Shift Coverage	\$ 17,158	\$ 17,974	\$ 30,648	\$ 33,861	\$34,608
LABOR	Sewer Part Time/Temp Salaries	\$ -	\$ -	\$ -	\$ 8,448	\$3,696
LABOR	Sewer Professional Development	\$ 780	\$ 1,020	\$ 450	\$ -	\$6,775
LABOR	Sewer Professional Salaries	\$ -	\$ -	\$ 91,217	\$ 113,253	\$115,077
LABOR	Sewer Professional Services					\$41,285
LABOR	Sewer Supplies & Materials	\$ -	\$ -	\$ 145,030	\$ 162,046	
MISCELLANEOUS	Sewer Billing/Collection/Printing					\$3,098
MISCELLANEOUS	Sewer Business Travel					\$352
MISCELLANEOUS	Sewer Dues/Memberships/Licenses					\$611
MISCELLANEOUS	Sewer Other Expenses	\$ -	\$ -	\$ 1,709	\$ 3,812	\$207,403
MISCELLANEOUS	Sewer Other Services	\$ -	\$ -	\$ 177,500	\$ 206,048	
MISCELLANEOUS	Sewer Software Licensing/Saas					\$9,631
RATE FUNDED CAPITAL	Cwmp Feasibility St	\$ -	\$ -	\$ -	\$ 25,000	\$5,000
RATE FUNDED CAPITAL	Sewer Capital Construction In Progress					\$9,600
RATE FUNDED CAPITAL	Sewer Public Works Capital	\$ -	\$ -	\$ 43,955	\$ 82,932	
RATE FUNDED CAPITAL	South Uxbridge Water Sewer Feasibility	\$ -	\$ -	\$ -	\$ 19,027	
RATE FUNDED CAPITAL	W River Rd Design					\$93,000
SUPPLIES	Sewer Clothing Allowance	\$ -	\$ 1,780	\$ 4,583	\$ -	
SUPPLIES	Sewer Custodial Supplies	\$ 2,062	\$ 1,688	\$ -	\$ -	
SUPPLIES	Sewer Public Works Supplies					\$140,535
VEHICLES	Sewer Capital Vehicles					\$43,738
VEHICLES	Sewer Vehicle Repairs & Maintenance					\$7,169
TECHNICAL SERVICES	Sewer Capital Consulting & Services					\$185,000
TECHNICAL SERVICES	Sewer Professional Services	\$ -	\$ -	\$ 73,534	\$ 81,470	
TECHNICAL SERVICES	Sewer Professional Services Ww Treatment Plant Value Eng	\$ -	\$ -	\$ -	\$ 800,000	
TECHNICAL SERVICES	Sewer Technology Support Services					\$1,070
OPERATING EXPENSES & MAINTENANCE	Npdes Permit	\$ -	\$ -	\$ -	\$ 647	\$332
OPERATING EXPENSES & MAINTENANCE	Sewer Building Repairs & Maintenance					\$3,277
OPERATING EXPENSES & MAINTENANCE	Sewer Building Systems					\$840
OPERATING EXPENSES & MAINTENANCE	Sewer Building/Facilities Supplies					\$3,203
OPERATING EXPENSES & MAINTENANCE	Sewer Capital Replacement Equipment					\$28,385
OPERATING EXPENSES & MAINTENANCE	Sewer Electricity & Heating	\$ 134,201	\$ 122,247	\$ 140,910	\$ 152,169	\$137,232
OPERATING EXPENSES & MAINTENANCE	Sewer Equipment Repairs & Maintenance	\$ 23,559	\$ 17,650	\$ -	\$ -	\$38,680
OPERATING EXPENSES & MAINTENANCE	Sewer Postage & Mailing					\$177
OPERATING EXPENSES & MAINTENANCE	Sewer Property/Grounds & Maintenance					\$10,618
OPERATING EXPENSES & MAINTENANCE	Sewer Rentals & Leases	\$ -	\$ -	\$ 159	\$ 735	\$288
OPERATING EXPENSES & MAINTENANCE	Sewer Repairs (Building/Equip/Grounds)	\$ -	\$ -	\$ 69,165	\$ 90,586	
OPERATING EXPENSES & MAINTENANCE	Sewer Telecommunications					\$1,634
OPERATING EXPENSES & MAINTENANCE	Swr Facilities	\$ -	\$ -	\$ -	\$ 26,200	
INDIRECT	Sewer Interfund Operating Transfers (Out)	\$584,535	\$277,871	\$ 312,420	\$ 449,400	
INDIRECT	Sewer Transfers Out To General Fund					\$324,251
Grand Total		\$831,263	\$510,028	\$1,398,477	\$2,869,597	\$1,773,768.20

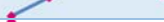

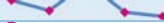





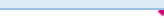







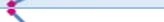



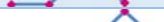
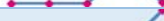






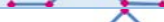
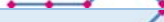

Expense Analysis and Trending

Period	Average	Trends	FY19 Budget	Escalator
\$	2,052.16		\$ 3,000.00	2.5%
\$	31,513.31		\$ 28,833.00	2.5%
\$	7,559.24			2.5%
\$	268,232.78		\$ 283,483.00	2.5%
\$	26,849.81		\$ 45,000.00	2.5%
\$	6,072.00		\$ 6,720.00	2.5%
\$	2,256.13		\$ 7,400.00	2.5%
\$	106,515.56		\$ 147,212.00	2.5%
\$	41,285.37		\$ 40,000.00	2.5%
\$	153,537.87			2.5%
\$	3,097.88		\$ 5,000.00	2.5%
\$	351.78		\$ 500.00	2.5%
\$	611.00		\$ 2,000.00	2.5%
\$	70,974.57		\$ 240,000.00	2.5%
\$	191,773.98			2.5%
\$	9,631.40		\$ 15,000.00	2.5%
\$	15,000.00			2.5%
Done? \$	9,599.60			
\$	63,443.40			2.5%
\$	19,027.15			2.5%
done? \$	93,000.00			2.5%
\$	3,181.64			2.5%
\$	1,875.07			2.5%
\$	140,534.91		\$ 160,000.00	2.5%
\$	43,738.16			2.5%
\$	7,169.00		\$ 12,000.00	2.5%
\$	185,000.00		\$ 15,000.00	2.5%
\$	77,502.26			2.5%
\$	800,000.00			2.5%
\$	1,070.08		\$ 5,700.00	2.5%
\$	489.45			2.5%
\$	3,276.77		\$ 12,100.00	2.5%
\$	840.00		\$ 21,000.00	2.5%
\$	3,202.80		\$ 4,200.00	2.5%
\$	28,385.00			2.5%
\$	137,352.01		\$ 166,800.00	2.5%
\$	26,629.49		\$ 50,000.00	2.5%
\$	177.12		\$ 250.00	2.5%
\$	10,617.85		\$ 16,000.00	2.5%
\$	394.12		\$ 750.00	2.5%
\$	79,875.22			2.5%
\$	1,634.12		\$ 2,000.00	2.5%
\$	26,200.00			2.5%
\$	406,056.52			2.5%
\$	324,251.00			2.5%
\$	1,476,626.60			2.5%
				\$ 1,289,948.00

Projected Direct Costs

Category	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
LABOR	\$ 2,100.00	\$ 2,152.50	\$ 2,206.31	\$ 2,261.47	\$ 2,318.01	\$ 2,375.96	\$ 2,435.36	\$ 2,496.24	\$ 2,558.65	\$ 2,622.61	\$ 2,688.18
LABOR	\$ 30,000.00	\$ 30,750.00	\$ 31,518.75	\$ 32,306.72	\$ 33,114.39	\$ 33,942.25	\$ 34,790.80	\$ 35,660.57	\$ 36,552.09	\$ 37,465.89	\$ 38,402.54
LABOR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
LABOR	\$ 290,000.00	\$ 297,250.00	\$ 304,681.25	\$ 312,298.28	\$ 320,105.74	\$ 328,108.38	\$ 336,311.09	\$ 344,718.87	\$ 353,336.84	\$ 362,170.26	\$ 371,224.52
LABOR	\$ 35,000.00	\$ 35,875.00	\$ 36,771.88	\$ 37,691.17	\$ 38,633.45	\$ 39,599.29	\$ 40,589.27	\$ 41,604.00	\$ 42,644.10	\$ 43,710.20	\$ 44,802.96
LABOR	\$ 4,200.00	\$ 4,305.00	\$ 4,412.63	\$ 4,522.94	\$ 4,636.01	\$ 4,751.91	\$ 4,870.71	\$ 4,992.48	\$ 5,117.29	\$ 5,245.22	\$ 5,376.36
LABOR	\$ 7,000.00	\$ 7,175.00	\$ 7,354.38	\$ 7,538.23	\$ 7,726.69	\$ 7,919.86	\$ 8,117.85	\$ 8,320.80	\$ 8,528.82	\$ 8,742.04	\$ 8,960.59
LABOR	\$ 117,400.00	\$ 120,335.00	\$ 123,343.38	\$ 126,426.96	\$ 129,587.63	\$ 132,827.32	\$ 136,148.01	\$ 139,551.71	\$ 143,040.50	\$ 146,616.51	\$ 150,281.93
LABOR	\$ 40,000.00	\$ 41,000.00	\$ 42,025.00	\$ 43,075.63	\$ 44,152.52	\$ 45,256.33	\$ 46,387.74	\$ 47,547.43	\$ 48,736.12	\$ 49,954.52	\$ 51,203.38
LABOR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MISCELLANEOUS	\$ 3,200.00	\$ 3,280.00	\$ 3,362.00	\$ 3,446.05	\$ 3,532.20	\$ 3,620.51	\$ 3,711.02	\$ 3,803.79	\$ 3,898.89	\$ 3,996.36	\$ 4,096.27
MISCELLANEOUS	\$ 450.00	\$ 461.25	\$ 472.78	\$ 484.60	\$ 496.72	\$ 509.13	\$ 521.86	\$ 534.91	\$ 548.28	\$ 561.99	\$ 576.04
MISCELLANEOUS	\$ 700.00	\$ 717.50	\$ 735.44	\$ 753.82	\$ 772.67	\$ 791.99	\$ 811.79	\$ 832.08	\$ 852.88	\$ 874.20	\$ 896.06
MISCELLANEOUS	\$ 210,000.00	\$ 215,250.00	\$ 220,631.25	\$ 226,147.03	\$ 231,800.71	\$ 237,595.72	\$ 243,535.62	\$ 249,624.01	\$ 255,864.61	\$ 262,261.22	\$ 268,817.75
MISCELLANEOUS	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
MISCELLANEOUS	\$ 10,000.00	\$ 10,250.00	\$ 10,506.25	\$ 10,768.91	\$ 11,038.13	\$ 11,314.08	\$ 11,596.93	\$ 11,886.86	\$ 12,184.03	\$ 12,488.63	\$ 12,800.85
RATE FUNDED CAPITAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
RATE FUNDED CAPITAL	\$ 520,000.00										
RATE FUNDED CAPITAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
RATE FUNDED CAPITAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
RATE FUNDED CAPITAL	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SUPPLIES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SUPPLIES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SUPPLIES	\$ 145,000.00	\$ 148,625.00	\$ 152,340.63	\$ 156,149.14	\$ 160,052.87	\$ 164,054.19	\$ 168,155.55	\$ 172,359.43	\$ 176,668.42	\$ 181,085.13	\$ 185,612.26
VEHICLES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
VEHICLES	\$ 7,500.00	\$ 7,687.50	\$ 7,879.69	\$ 8,076.68	\$ 8,278.60	\$ 8,485.56	\$ 8,697.70	\$ 8,915.14	\$ 9,138.02	\$ 9,366.47	\$ 9,600.63
TECHNICAL SERVICES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TECHNICAL SERVICES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TECHNICAL SERVICES	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TECHNICAL SERVICES	\$ 1,200.00	\$ 1,230.00	\$ 1,260.75	\$ 1,292.27	\$ 1,324.58	\$ 1,357.69	\$ 1,391.63	\$ 1,426.42	\$ 1,462.08	\$ 1,498.64	\$ 1,536.10
OPERATING EXPENSES & MAINTEN	\$ 500.00	\$ 512.50	\$ 525.31	\$ 538.45	\$ 551.91	\$ 565.70	\$ 579.85	\$ 594.34	\$ 609.20	\$ 624.43	\$ 640.04
OPERATING EXPENSES & MAINTEN	\$ 3,500.00	\$ 3,587.50	\$ 3,677.19	\$ 3,769.12	\$ 3,863.35	\$ 3,959.93	\$ 4,058.93	\$ 4,160.40	\$ 4,264.41	\$ 4,371.02	\$ 4,480.30
OPERATING EXPENSES & MAINTEN	\$ 1,000.00	\$ 1,025.00	\$ 1,050.63	\$ 1,076.89	\$ 1,103.81	\$ 1,131.41	\$ 1,159.69	\$ 1,188.69	\$ 1,218.40	\$ 1,248.86	\$ 1,280.08
OPERATING EXPENSES & MAINTEN	\$ 3,500.00	\$ 3,587.50	\$ 3,677.19	\$ 3,769.12	\$ 3,863.35	\$ 3,959.93	\$ 4,058.93	\$ 4,160.40	\$ 4,264.41	\$ 4,371.02	\$ 4,480.30
OPERATING EXPENSES & MAINTEN	\$ 30,000.00	\$ 30,750.00	\$ 31,518.75	\$ 32,306.72	\$ 33,114.39	\$ 33,942.25	\$ 34,790.80	\$ 35,660.57	\$ 36,552.09	\$ 37,465.89	\$ 38,402.54
OPERATING EXPENSES & MAINTEN	\$ 140,000.00	\$ 143,500.00	\$ 147,087.50	\$ 150,764.69	\$ 154,533.80	\$ 158,397.15	\$ 162,357.08	\$ 166,416.01	\$ 170,576.41	\$ 174,840.82	\$ 179,211.84
OPERATING EXPENSES & MAINTEN	\$ 40,000.00	\$ 41,000.00	\$ 42,025.00	\$ 43,075.63	\$ 44,152.52	\$ 45,256.33	\$ 46,387.74	\$ 47,547.43	\$ 48,736.12	\$ 49,954.52	\$ 51,203.38
OPERATING EXPENSES & MAINTEN	\$ 200.00	\$ 205.00	\$ 210.13	\$ 215.38	\$ 220.76	\$ 226.28	\$ 231.94	\$ 237.74	\$ 243.68	\$ 249.77	\$ 256.02
OPERATING EXPENSES & MAINTEN	\$ 11,000.00	\$ 11,275.00	\$ 11,556.88	\$ 11,845.80	\$ 12,141.94	\$ 12,445.49	\$ 12,756.63	\$ 13,075.54	\$ 13,402.43	\$ 13,737.49	\$ 14,080.93
OPERATING EXPENSES & MAINTEN	\$ 500.00	\$ 512.50	\$ 525.31	\$ 538.45	\$ 551.91	\$ 565.70	\$ 579.85	\$ 594.34	\$ 609.20	\$ 624.43	\$ 640.04
OPERATING EXPENSES & MAINTEN	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OPERATING EXPENSES & MAINTEN	\$ 1,800.00	\$ 1,845.00	\$ 1,891.13	\$ 1,938.40	\$ 1,986.86	\$ 2,036.53	\$ 2,087.45	\$ 2,139.63	\$ 2,193.13	\$ 2,247.95	\$ 2,304.15
OPERATING EXPENSES & MAINTEN	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
INDIRECT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
INDIRECT	\$ 228,226.21	\$ 233,931.87	\$ 239,780.16	\$ 245,774.67	\$ 251,919.03	\$ 258,217.01	\$ 264,672.43	\$ 271,289.25	\$ 278,071.48	\$ 285,023.26	\$ 292,148.85
Grand Total	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 1,883,976.21	\$ 1,398,075.62	\$ 1,433,027.51	\$ 1,468,853.19	\$ 1,505,574.52	\$ 1,543,213.89	\$ 1,581,794.23	\$ 1,621,339.09	\$ 1,661,872.57	\$ 1,703,419.38	\$ 1,746,004.87

Expenses

Utility Account Type	Sewer Revenue	Historic Revenue					Revenue Analysis					Projected Revenue			
Sum of YTD Revenue Receipts Category		Year													
		FY13	FY14	FY15	FY16	FY17	Period Average	Trends	Start Value	Delta	Escalator	FY18	FY19	FY20	FY21
NON RATE REVENUE	Sewer Departmental Fees	\$ 215,350.00	\$ 286,526.25	\$ 326,465.00	\$ 360,403.85	\$ 296,728.33	\$ 297,094.69		\$ 300,000.00	\$ -	0.00%	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00
NON RATE REVENUE	Sewer Misc Revenue	\$ 1,489.42	\$ 238.89	\$ -	\$ -		\$ 864.16		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Penalties & Interest On Taxes	\$ 10,867.17	\$ 8,848.78	\$ 14,196.54	\$ 8,539.40	\$ 7,738.78	\$ 10,038.13		\$ 8,500.00	\$ -	0.00%	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00
NON RATE REVENUE	Sewer Special Assess & Betterments Interest 2013	\$ 18.00	\$ -	\$ -	\$ -		\$ 18.00		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Special Assess & Betterments Interest 2014	\$ -	\$ 1,261.91	\$ -	\$ -		\$ 1,261.91		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Special Assess & Betterments Interest 2015	\$ -	\$ -	\$ 931.92	\$ -		\$ 931.92		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Special Assess & Betterments Interest 2016	\$ -	\$ -	\$ -	\$ 931.72		\$ 931.72		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Special Assessments & Betterments 2013	\$ 1,660.79	\$ -				\$ 1,660.79		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Special Assessments 2017					\$ 647.61	\$ 647.61		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Special Assessments Committed Int 2017					\$ 223.13	\$ 223.13		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Utility System Development	\$ 28,200.00	\$ 57,000.00	\$ 15,000.00	\$ 30,000.00	\$ 123,000.00	\$ 50,640.00		\$ 30,000.00	\$ -	0.00%	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00	\$ 30,000.00
NON RATE REVENUE	Sewer Utility Usage Liens 2013	\$ 10,893.85	\$ 55.94	\$ -	\$ -		\$ 5,474.90		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Utility Usage Liens 2014	\$ -	\$ 39,816.44	\$ 12.28	\$ -		\$ 19,914.36		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Utility Usage Liens 2015	\$ -	\$ -	\$ 62,457.32	\$ 352.23		\$ 31,404.78		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Utility Usage Liens 2016	\$ -	\$ -	\$ -	\$ 89,740.59		\$ 89,740.59		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE	Sewer Utility Usage Liens 2017	\$ -	\$ -	\$ -	\$ -	\$ 88,944.07	\$ 88,944.07		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
NON RATE REVENUE Total		\$ 268,479.23	\$ 393,748.21	\$ 419,063.06	\$ 489,967.79	\$ 517,281.92	\$ 417,708.04				0.00%				
RATE REVENUE	Sewer Utility Usage Charges 2012	\$ 80,933.14	\$ 132.80	\$ -	\$ -		\$ 40,532.97		\$ -	\$ -	0.00%				
RATE REVENUE	Sewer Utility Usage Charges 2013	\$ 813,679.37	\$ 46,641.43	\$ -	\$ -		\$ 430,160.40		\$ -	\$ -	0.00%				
RATE REVENUE	Sewer Utility Usage Charges 2014	\$ -	\$ 803,136.51	\$ 36,697.90	\$ -		\$ 419,917.21		\$ -	\$ -	0.00%				
RATE REVENUE	Sewer Utility Usage Charges 2015	\$ -	\$ -	\$ 923,493.05	\$ 45,504.06		\$ 484,498.56		\$ -	\$ -	0.00%				
RATE REVENUE	Sewer Utility Usage Charges 2016	\$ -	\$ -	\$ -	\$ 955,624.55	\$ 37,114.79	\$ 496,369.67		\$ -	\$ -	0.00%				
RATE REVENUE	Sewer Utility Usage Charges 2017	\$ -	\$ -	\$ -	\$ -	\$ 1,017,314.74	\$ 1,017,314.74		\$ -	\$ -	0.00%				
RATE REVENUE Total		\$ 894,612.51	\$ 849,910.74	\$ 960,190.95	\$ 1,001,128.61	\$ 1,054,429.53	\$ 952,054.47		\$ -	\$ -	0.00%				
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2011	\$ 9.82	\$ -	\$ -	\$ -		\$ 9.82		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2012	\$ 13,170.69	\$ 1,774.11	\$ -	\$ -		\$ 7,472.40		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2013	\$ 149,892.19	\$ 7,539.89	\$ 7.52	\$ -		\$ 52,479.87		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2014	\$ -	\$ 153,790.82	\$ 5,148.74	\$ 115.67		\$ 53,018.41		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2015	\$ -	\$ -	\$ 148,352.15	\$ 6,320.06	\$ 2.49	\$ 51,558.23		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2016	\$ -	\$ -	\$ 681.26	\$ 150,313.78	\$ 4,534.25	\$ 51,843.10		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF)	Sewer Utility Capital Improvement 2017	\$ -	\$ -	\$ -	\$ 700.19	\$ 442,582.40	\$ 221,641.30		\$ -	\$ -	0.00%	\$ -	\$ -	\$ -	\$ -
Capital Improvement (CIF) Total		\$ 163,072.70	\$ 163,104.82	\$ 154,189.67	\$ 157,449.70	\$ 447,119.14									
Grand Total		\$ 1,326,164.44	\$ 1,406,763.77	\$ 1,533,443.68	\$ 1,648,546.10	\$ 2,018,830.59						\$ 338,500.00	\$ 338,500.00	\$ 338,500.00	\$ 338,500.00

Revenue Analysis - Previous Year Revenue

Account/ Description	FY13	As % of Current1	FY14	As % of Current2	FY15	As % of Current3	FY16	As % of Current4	FY17	As % of Current5
Sewer Utility Usage Liens 2013	\$ 10,893.85	1.34%	\$ 55.94	0.01%	\$ -	0.00%	\$ -	0.00%		0.00%
Sewer Utility Usage Liens 2014	\$ -	0.00%	\$ 39,816.44	4.68%	\$ 12.28	0.00%	\$ -	0.00%		0.00%
Sewer Utility Usage Liens 2015	\$ -	0.00%	\$ -	0.00%	\$ 62,457.32	6.50%	\$ 352.23	0.04%		0.00%
Sewer Utility Usage Liens 2016	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ 89,740.59	8.96%		0.00%
Sewer Utility Usage Liens 2017	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ -	0.00%	\$ 88,944.07	8.44%
Rate Revenue Total	\$ 814,537.83		\$ 849,910.74		\$ 960,190.95		\$ 1,001,128.61		\$ 1,054,429.53	

Average % previous year revenue: 5.99%

Commitments	Model	Delta (total)	Delta (%)
\$1,058,715.77	\$1,052,007.24	\$6,708.53	0.63%
\$1,127,058.49	\$1,130,767.82	-\$3,709.33	-0.33%

Collected	Model	Delta (total)	Delta (%)
\$1,001,128.61	\$1,052,007.2	\$50,878.6	-5.08%
\$1,054,429.53	\$1,130,767.8	\$76,338.3	-7.24%

Rate Revenue

Current Rate Structure and Rates Do Nothing

Category	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY27	FY28
Base Charge	Quarterly Fee	\$375,812	\$406,600	\$418,181	\$420,271	\$422,373	\$424,485	\$426,607	\$428,740	\$430,884	\$433,038	\$437,379	\$439,566
Usage Charge	Usage	\$676,196	\$724,168	\$741,083	\$741,083	\$741,083	\$741,083	\$741,083	\$741,083	\$741,083	\$741,083	\$741,083	\$741,083
Total		\$1,052,007	\$1,130,768	\$1,159,263	\$1,161,354	\$1,163,455	\$1,165,567	\$1,167,690	\$1,169,823	\$1,171,966	\$1,174,121	\$1,178,462	\$1,180,649

0%

Recommended Rate Structure and Required Rate Increases

Category	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY27	FY28
Base Charge	Quarterly Fee	\$375,812	\$406,600	\$418,181	\$958,219	\$1,107,461	\$1,112,999	\$1,174,492	\$1,180,364	\$1,186,266	\$1,192,197	\$1,264,357	\$1,270,678
Usage Charge	Usage	\$676,196	\$724,168	\$741,083	\$1,689,669	\$1,943,119	\$1,943,119	\$2,040,275	\$2,040,275	\$2,040,275	\$2,040,275	\$2,142,288	\$2,142,288
Total		\$1,052,007	\$1,130,768	\$1,159,263	\$2,647,887	\$3,050,580	\$3,056,117	\$3,214,767	\$3,220,639	\$3,226,541	\$3,232,472	\$3,406,645	\$3,412,967

Current Rate Structure with Required Rate Increases

Category	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY27	FY28
Base Charge	Quarterly Fee	\$375,812	\$406,600	\$418,181	\$504,326	\$557,532	\$560,320	\$563,121	\$565,937	\$568,767	\$571,610	\$577,341	\$580,228
Usage Charge	Usage	\$676,196	\$724,168	\$741,083	\$889,299	\$978,229	\$978,229	\$978,229	\$978,229	\$978,229	\$978,229	\$978,229	\$978,229
Total		\$1,052,007	\$1,130,768	\$1,159,263	\$1,393,625	\$1,535,761	\$1,538,549	\$1,541,350	\$1,544,166	\$1,546,996	\$1,549,840	\$1,555,570	\$1,558,457

Town of Uxbridge

2018 Sewer Rate Model

Rates

Current Rate Structure (Do Nothing)														
Description	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
5/8"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3/4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1.5"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Base Charge	Quarterly Fee	\$39.76	\$42.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80	\$43.80
Usage Charge	Usage	\$6.17	\$6.85	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01	\$7.01

Recommended Rate Structure and Required Rate Increases														
Description	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
5/8"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3/4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1.5"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Base Charge	Quarterly Fee	\$39.76	\$42.80	\$43.80	\$99.86	\$114.84	\$114.84	\$120.59	\$120.59	\$120.59	\$120.59	\$126.62	\$126.62	\$126.62
Usage Charge	Usage	\$6.17	\$6.85	\$7.01	\$15.98	\$18.38	\$18.38	\$19.30	\$19.30	\$19.30	\$19.30	\$20.26	\$20.26	\$20.26

Current Rate Structure with Required Rate Increases														
Description	Type	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28
5/8"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3/4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
1.5"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
2"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
3"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
4"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
6"	Quarterly Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Base Charge	Quarterly Fee	\$39.76	\$42.80	\$43.80	\$52.56	\$57.82	\$57.82	\$57.82	\$57.82	\$57.82	\$57.82	\$57.82	\$57.82	\$57.82
Usage Charge	Usage	\$6.17	\$6.85	\$7.01	\$8.41	\$9.25	\$9.25	\$9.25	\$9.25	\$9.25	\$9.25	\$9.25	\$9.25	\$9.25

Rates

Inflation factor

Capital Improvement Planner

Project	Description	Funding source	Interest rate	Estimated Cost	Cost Year	Debt year	Spread	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1	Inflow /Infiltration Engineering and Construction	Rate	N/A	\$ 900,000.00	2019	2019	3	\$0	\$0	\$300,000	\$300,000	\$300,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	New Infiltration / Inflow Study	Debt	5.0%	\$ 500,000.00	2017	2022	1	\$0	\$0	\$0	\$0	\$12,480	\$136,000	\$132,385	\$132,199	\$132,009	\$131,815	\$0	\$0
9	Replacement for Landfill Mower	Rate	N/A	\$ 150,000.00	2017	2020	1	\$0	\$0	\$0	\$172,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
10	Replacement flail mower attachemet	Rate	N/A	\$ 30,000.00	2017	2020	1	\$0	\$0	\$0	\$35,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total:								\$ -	\$ -	\$ 300,000	\$ 507,000	\$ 312,480	\$ 136,000	\$ 132,385	\$ 132,199	\$ 132,009	\$ 131,815	\$ -	\$ -